

VALUES AND CONCERNS IN DECISION-  
MAKING ABOUT A WASTE-REDUCTION  
INCINERATOR AT STORMSRIVER,  
TSITSIKAMMA:

A CASE STUDY IN APPLIED ETHICS

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## DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature:

Date:

## ABSTRACT

The Tsitsikamma Forest, in the most southern part of the Eastern Cape, is part of the Cape Floral Kingdom, one of six such Kingdoms in the world. It has the richest area of plant bio-diversity and fauna in the world which are rare and endemic to the area. The deep gorges, temperate forests, unspoilt oceans and various other features such as the famous Bloukrantz River Bridge, where the world's highest bungi jumps take place are factors that have become the main source of job-creation and income for tourism and its inter-related activities.

However, this ecosystem is also home to about 480 families who live in low-income housing at Stormsriver. This settlement which was relocated from the shack area of Coesa, nearby, has an unemployment index of 67% and a similar poverty index. In addition, the Stormsriver Village nearby has a population of about 300 families, mainly older retired white folks. The area is administered by the Koukamma Municipality which is an amalgam of several smaller municipalities viz., Clarkeson, Kareedouw, Stormsriver, Woodlands, Eerste River, Joubertina and Bloukrantz.

Waste reduction and the disposal thereof has always been a major concern to local authorities and the Koukamma Municipality is obviously faced with the same challenge. The authorities have resorted to the concept of landfill sites, which has proven to be the cheapest solution to date. But, with this option comes the problems of health risks to the poorer people who converge on the dump sites in search of food, the harm to children searching through rubbish heaps and the various legal repercussions emanating out of this practice.



The option of open-burning and its related effects on human life and forest fires rules it out as an option. Transporting waste out of the area is also very costly.

It was then resolved by the Koukamma Municipalities that the possibility of installing an incinerator at Stormsriver would be an option to be investigated. The reasoning behind the selection of this site was the concern of high unemployment in the Stormsriver area and extreme poverty and this venture would in some small measure create jobs, put food on the table and break the poverty cycle.

The process of incineration gives rise to emissions such as dioxins and furans which is known to cause cancer, asthma and tuberculosis, if subjected in high doses over a long period of time. It is also regulated by the Atmospheric Pollution Act 45 of 1965.

The important moral debate at the core of this problem is the whole question of humans rights and should these be violated solely because the subjects do not belong to an affluent class and should be shown less respect and have their health jeopardised by the toxic air from incineration. Or, should the people's poverty index rise further due to lack of employment.

The question that also begs here is whether the well-being of the entire ecosystem, especially the rare and endangered plants and animals take preference over the well-being of the people of Stormsriver, given that the emissions from the incinerator will impact on the animal, bird and plant life, including that of water, soil and air.



This would also put into jeopardy the income generated by Tourism and the jobs inherent in it for the locals and would threaten the area's sustainability.

The various moral views of philosophers have been canvassed in order to come to a holistic understanding. I have in this vein looked at the views of ethicists such as Tibor Machan, who believes that animals and other organisms do not have any rights and are there purely for human consumption. Then the views of Peter Singer and Tom Regan have also been included, in which consideration is shown to animals. Others such as Aldo Leopold, J. Baird Callicott and Paul Taylor whose thinking extends to that of not just showing respect for a single entity but allows for equal respect for all members of the biotic community, have also been considered.

Various solutions have thereafter been considered and amongst those are the relocation of the incinerator out of the Stormsriver, moving the plant to the industrial zone at Kareedouw, transporting the waste out to Port Elizabeth, dumping and finally the 'Do Nothing' option.

Using Paul Taylor's "respect for nature" ethics as a guide, I have come to the conclusion that the installation of a waste-reduction incinerator at Stormsriver, Tsitsikamma, may be supported subject to a set of serious riders and conditions in that firstly, the health of the immediate and surrounding inhabitants should not be affected in any way whatsoever. Secondly, the well-being of the non-human environment which must include air, soil, water and plant life, including the animal and bird life must not be harmed in any way. In this way all members of the biotic

community will be shown equal respect, thus creating a viable and sustainable community.

## OPSOMMING

Die Tsitsikamma Woude, in die mees suidelike deel van the Oos-Kaap, is deel van die “Cape Floral Kingdom”, een van ses sulke woudgebiede in die wêreld. Dit beskerm die rykste area van plant bio-verskeidenheid asook fauna wat skaars is in die wêreld en slegs daar gevind word. Die diep bergpasse, gemagtigde woude en ongerepte oseaan, tesame met die beroemde Bloukransrivier brug waar die wêreld se hoogste bungispronge plaasvind is faktore wat bygedra het dat werkskepping en inkomste hoofsaaklik uit toerisme en verwante bedrywe afkomstig is.

Hierdie eko-sisteem is ook die tuiste vir ongeveer 480 gesinne wat in sub-ekonomiese huise in Stormsrivier woon. Hierdie gemeenskappe wat vanaf die naby geleë Coesa hervesig is, het ’n werkloosheid sowel as armoede syfer van 67%. Bykomend is daar die Stormsriver nedersetting daar naby met ’n bevolking van 300 families, hoofsaaklik ouer, afgetrede blankes. Die gebied word bestuur deur die Koukamma Munisipaliteit wat in ’n samesmelting van ’n hele paar kleiner munisipaliteite is o.a Clarkson, Kareedouw, Stormsrivier, Woodlands, Eerste Rivier, Joubertina en Bloukrans.

Die vermindering van afvalstowwe asook die verwydering daarvan was maar altyd ’n groot kopseer vir die plaaslike owerhede en dit geld nou ook vir die Koukamma Munisipaliteit. Die owerhede het besluit op die konsep van afvalstortings areas omdat dit die goedkoopste oplossing tot nou toe is. Met hierdie opsie kom egter die probleem van gesondheids risiko’s vir die armer gemeenskappe (mense) wat op hierdie stortings terreine toesak op soek na kos, die beserings wat kinders opdoen wat die gemors deursoek asook die wettige terugslag wat hierdie praktyk tot



gevolg het. Die gevaar van oop vure en die effek wat dit sou hê op mense en die woud self maak dat hierdie opsie nie oorweeg word nie. Ook is dit te duur om afvalstowwe uit die gebied uit te vervoer.

Die Koukamma Munisipaliteit het toe besluit om die installering van 'n verbrandingsoond by Stormsrivier te ondersoek. Die rede om hierdie gebied te kies was die hoë werkloosheid syfer en armoede in Stormsrivier. Hierdie besluit sou werkskepping, kos op die tafel en die verbreking van die armoede-siklus tot gevolg hê.

Die proses van verbranding het aanleiding gegee tot die nuwe gevare van skadelike afval produkte van dioksiede en furane wat kanker, asma en tuberkulose tot gevolg het as mense vir lang periodes aan hoë dosisse blootgestel word. Hierdie uitstraling word ook deur die "Atmosferiese Besoedelingswet 45 van 1965" gereguleer.

Die belangrike morele debat wat die kern van hierdie probleem vorm is die vraag na menseregte en of die menseregte geskend kan word bloot omdat die mense in die gebied nie aan 'n goeie klas behoort nie moet daar minder respek aan hulle getoon word en moet hul gesondheid in die weeg skaal geplaas word deur die giftige lug as gevolg van die verbranding van afvalstowwe, of moet werkloosheid verder styg as gevolg van die gebrek aan werk?

Die ander vraag wat gevra moet word is of die welvaart van die hele ekosisteem, veral die van skaars en bedreigde plante en diere voorkeur moet geniet bo die welvaart van die mense van Stormsrivier gegee die feit dat die uitstraling van die verbrandingsoond ook 'n inpak gaan hê op die diere, voëls en plant lewe inklusief op water, grond en lug. Dit sal ook

die inkomste wat uit Toerisme voort gebring word, en die werksgeleenthede vir die plaaslike mense wat daarmee gepaard gaan, in die weegskaal plaas asook die gebied se standhoudendheid bedreig.

Die verskeie standpunte van filosowe is na gekyk ten einde tot 'n holistiese verstaan van die situasie te kom. Langs hierdie weg het ek dan na die etiese standpunt van Tibor Machan gekyk. Tibor Machan glo dat diere en ander organismes geen regte het nie en dat hulle daar is vir die uitsluitlike gebruik deur mense. Die standpunte van Peter Singer en Tom Regan, wat 'n mate van sorgsaamheid teenoor diere toon, is ook in ag geneem. Andere wie se standpunte in ag geneem is, is Aldo Leopold, J. Baird Callicot and Paul Taylor. Hulle denkriktigting maak voorsiening daarvoor dat respek nie net aan 'n enkele entiteit getoon moet word nie, maar aan almal wat in 'n biotiese gemeenskap saamwoon.

Verskeie oplossings is hierna oorweeg onder andere die verskuiwing van die verbrandingsoond buite Stormsrivier na die industriële gebied in Kareedouw, die vervoer van die afval na Port Elizabeth, storting asook die “Doen Niks” opsie.

Ek het as etiese riglyn Paul Taylor se “respekteer vir natuur” gebruik en het tot die slotsoom gekom dat die installering van 'n afval verminderingsoond te Stormsrivier ondersteun kan word met ernstige voorbehoude en voorwaardes deurdat, eerstens, die gesondheid van die onmiddellike en omliggende inwoners op geen manier hoegenaamd aangetas moet word nie. Tweedens, die welvaart van die nie-lewende omgewing met inagneming van lug, grond, water en plantlewe, insluitende die diere en voëls moet op geen manier geskaad word nie.

Op hierdie manier sal almal wat deel uitmaak van die biotiese gemeenskap gelyke respek betoon word wat die daarstelling van 'n lewensvatbare en standhoudende gemeenskap tot gevolg sal hê.



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This case study is a result of a collaborative effort, and therefore does not necessarily reflect the position or view of an individual or organization or member of any organization.

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## DEDICATION

This paper is dedicated to my dear parents, Narain and Praenee Maharajh, who unrelentlessly advocated and inculcated in me the virtues of transparency, truth and goodwill.

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## LIST OF ACRONYMS

ANC	~	African National Congress
CFK	~	Cape Floral Kingdom
CO	~	Carbon Monoxide
CO <sub>2</sub>	~	Carbon Dioxide
CBP	~	Community Based Partner
CRG	~	Concerned Rate-Payer's Group
DEAT	~	Department of Environmental Affairs and Tourism
DA	~	Democratic Alliance
DET	~	Department of Education and Training
DWAF	~	Department of Water Affairs and Forestry
ECNFB	~	Eastern Cape National Parks Board
ECI	~	East Cape Incinerator Services
EIA	~	Environmental Impact Assessment
ECA	~	Environmental Conservation Act
HCL	~	Hydrochloric Acid
IDP	~	Integrated Development Plan
M.Phil	~	Master of Philosophy
MPA	~	Marine Protected Areas
MP	~	Member of Parliament
NEMA	~	National Environmental Management Act

N2	~	National Road 2
NPB	~	National Parks Board
PVC	~	Poly Vinyl Chloride
PDI	~	Previously Disadvantaged Individual
PAC	~	Pan Africanist Congress
PWD	~	Public Works Department
POS	~	Public Open Space
RSC	~	Regional Services Council
RDP	~	Reconstruction and Development Programme
SANPB	~	South African National Parks Board
SMMEs	~	Small Medium and Micro Enterprises
SAFCOL	~	South African Forestry Company Limited
TRCs	~	Transitional Rural Councils
TNF	~	Tsitsikamma National Forest
TNP	~	Tsitsikamma National Park
TFT	~	Tsitsikamma Forest Trust
TB	~	Tuberculosis
TFC	~	Tsitsikamma Conservation Forum
WDC	~	Western District Council
WCEEF	~	Western Cape Environmental Ethics Forum



## PREAMBLE

The Koukamma Municipality which is based in the small town of Kareedouw is an amalgam of several smaller municipalities such as Joubertina, Clarkeson, Woodlands, Stormsrivier, Bloukrantz and Coldstream. This is due to the Demarcation Board's determination of the boundaries of jurisdiction in terms of consolidating and creating sustainable local government structures in an attempt to achieve competent local governance.

Given the manner in which the selection criteria for political structures of management has recently been formulated by the African National Congress (ANC) led government, incumbents such as the mayors and portfolio councillors are all selected on the basis of representation, rather than being selected for expertise and management skills. In mitigation however, is their struggle against apartheid and its various atrocities that have been perpetrated on all the black people. In addition, their commitment politically and especially in the development of their communities, both socially and financially is appreciated. Their quest to finally achieve good governance and sustainability of the area under their jurisdiction through their fight, especially against poverty and high unemployment, is an ever looming and daunting task.

Having stated the above, one can see that the various portfolios held by incumbents in municipalities, especially those which deal with critical issues of health and development, need explicit and expert knowledge in order to run the portfolios competently and to the benefit of the people. Should this be absent much detriment will be imposed on their citizens.

However, given the present government's empowerment programmes, very carefully structured skills transfer and capacity building programmes are in place to empower incumbents, but this is strategic and the results of this process will only be felt in the long term. In the short term however, problems cannot be put on hold and incumbents will have to address issues and make decisions so that the beneficiaries and citizens do not suffer in any way. The Koukamma Municipality faces such a dilemma.

In this respect, the Koukamma Municipality will have to outsource much of its operations, especially those that require expert and in-depth input. The Koukamma Municipality's intention to construct a solid waste-reduction incinerator at Stormsrivier is one such project that cannot, given the levels of skills present in the area, be handled in-house. Therefore, the request of consultants to assist in the decision making process from an ethical and moral perspective is a responsible move by the Authorities. The issues surrounding waste-reduction and incineration are highly technical and sophisticated, but the ethics surrounding the issue is more complex and fraught with a tapestry of problems. This ventures into understanding the various legislations and acts and critically analysing whether they satisfy the critical aspects of protection of life and well-being of people.

The audience therefore, which is the decision-makers of the Koukamma Municipality, given that they will have to have a level of understanding of issues explicit in waste-reduction, will be taken through in some detail in areas and issues of waste-management and air pollution in order to get a fuller perspective of the challenges under discussion. This will be done within the narrower-technical framework of this paper.



The intention is to produce a document that can be referred to in a user-friendly manner. This does not however mean that incumbents should not follow-up the issues raised independently. They are encouraged to take the concerns raised further. It would be a morally responsible thing to do, even for themselves, if not for the future of their Municipality.

Finally, it must be explicitly noted that in making the above assumptions, the author in no way attempts to underestimate the capacity, integrity and knowledge base of the incumbents or decision-makers of the Koukamma Municipality and those who are involved in the decision-making process.



## CHAPTER I

### INTRODUCTION

The Tsitsikamma area, which has long been known for the famous Tsitsikamma Forest, remained an untouched natural habitat for the better part of the old dispensation. There was controlled tourism related development which were mostly businesses that enhanced the area as a tourist destination, boasting untouched rivers, animal and bird life and exotic and rare plants. Up market holiday homes were the pride of the inhabitants, mostly white retired businessmen who developed their leisure homes at great expense as there was a severe lack of formal infrastructure mainly water, roads and sanitation in the area.

Most inhabitants, especially black people inhabited various parts of the Tsitsikamma, living in informal shacks and makeshift homes. These people worked on the various white-owned farms and tourism related businesses in the surrounding areas. They claimed the forest and bushes as their homes and accessed water from the rivers. General household waste was dumped in secluded, out of sight areas and there was a general dependency on the natural environment for food and water. Slow deterioration of all forms of life, both human and non-human began, given that the area has a high poverty index.

The removal of waste from the urban sector, especially household waste was bagged and transported out to landfill sites, or other waste-reduction centers such as Humansdorp by the affluent inhabitants, who could afford the transport.

Some of the affluent inhabitants burnt their garden waste in open burning processes on their properties in a controlled fashion, especially those living in the up-market town of Stormsriver.

The informal settlers and bush dwellers, in addition to also burning waste for especially heat and cooking, burnt old tyres for retrieval of wire for sale. The poverty index of the Tsitsikamma, in particular that of the black informal dwellers hovers at about 67% and therefore the resorting to various modes of survival and targeting the forest as their primary source was common.

The advent of democracy brought with it serious concerns for the new government, having now being made aware of the vast numbers of “lost” people who have been inhabiting various areas of the Tsitsikamma, some for several generations.

The newly formed authorities such as the former Western District Council, came under tremendous pressure to provide formal housing, with potable water, sanitation and roads. In addition, the increased numbers brought with it the problem of household waste reduction. The authorities could not contain and police the practice of open-burning and resorted to waste reduction by land-fill site methods. Certain areas were earmarked for dumping and closure after it had reached optimum levels and collection, transportation and disposal became a costly and complex process. Firstly, the danger of landfill sites and open-burning practices became a threat to the health of the inhabitants, especially children that play in and around the site and thus became a concern. Secondly, the pollution of the air by uncontrolled open-burning practices also became a health hazard, as the lobbyists



were questioning the priorities of the authorities in condoning this unmanaged and dangerous process.

Due to these factors, the newly formed Municipality, Koukamma, which came into power in January 2000, began to research alternative forms of waste reduction. One such notion was the installation of a waste-reduction incinerator at Stormsriver, Tsitsikamma. The officials of the Koukamma Municipality, in conjunction with consultants have been investigating the feasibility of such an installation and its benefit thereof. However, there are other serious moral and ethical issues which need to be taken into account and this is an area of high concern, as in addition to the economic viability, values and concerns beyond the technical and economic issues such as morals and values must form part and parcel of the final decision-making process, as any decision will have serious impacts on the surrounding human and non-human world.

Generally speaking, other than the Department of Environmental Affairs and Tourism (DEAT) guidelines and various other legal restrictions, there is no broad based issue driven process that focuses on the ethical dimensions of environmental problems, as is in this particular case. Beyond the emission level restrictions, there is no broader ethical or moral obligation on the implementing agent, such as the Koukamma Municipality to anyone. This vacuum, if not suitably resolved, could result in paralysis of unthinkable proportions. The natural, physical and built environment in which all humans exist, in this case the Tsitsikamma, needs a serious and considerate approach, taking into account values relevant to making decisions in terms of environmental issues.



The moral dilemma(s) at the core of this argumentation is firstly, the human rights and justice perspective and whether there is a violation of these rights. Secondly, there is the issue of the rights of the fauna and flora and whether they should be granted moral consideration. Thirdly, should the holistic management of the ecosystem take preference, even if this means a compromise in human rights and that of the biotic communities. Then there is the whole question of ecological sustainability and whether the conservation of the ecosystem should take precedence over poverty alleviation of the poor, especially the previously disenfranchised sectors of our society. This is further argued by reference to debates around human rights and that of giving moral consideration to animals on the one hand, and a life-centered environmental ethics on the other. Alternative options available to the implementing agency is investigated, including the Do Nothing Option. Different solutions will then be proposed, following anthropocentric and non-anthropocentric approaches alternatively (Elliot 1993: 284). The view of the ethicist is also solicited. Finally in conclusion, it is argued that a consultative and participatory approach with clarity on all uncertainties, taking a balanced approach with respect for both man and the natural environment is a pragmatic and sensitive approach to resolving the concerns and issues of value in the proposal to install a waste-reduction incinerator at Stormsrivier, Tsitsikamma.

## CHAPTER II

### BACKGROUND

#### 1. The Context of the Project

Stormsriver is a picturesque coastal town about 200 km from Port Elizabeth and lies in the heart of the Tsitsikamma, adjunct to the world famous Tsitsikamma Forest, which is also one of the ecological “hot spots” of the Eastern Cape. The Cape Floral Kingdom has become a focus of global priority for conservation action. Owing to the large concentrations and existence of taxa, especially of plants and invertebrates and its vulnerability to processes that threaten this unique biodiversity, the Cape Floral Kingdom has been identified as a biodiversity hot spot of global importance (Mittermeier et al 1998). The area is tourist-orientated and boasts amongst other attractions, bungi jumping at the Bloukrantz Bridge, which is world famous, the Tsitsikamma National Park and Stormsriver Adventures which specializes in hiking trails, tubing and holiday resort accommodation. The name Tsitsikamma is derived from the Khoi-Khoi words “tse-tsesa” meaning “clear” and “gamma” meaning water.

The site that is earmarked for the construction of the proposed waste-reduction incinerator is adjunct to a newly developed low-cost, government subsidized housing project, housing about 470 families and the existing established town of Stormsriver boasts a population of about 300 people, of whom 90% are retired folks in holiday cottages and retirement homes. The average age of these folks is around 70 to 75 years.



In addition, the Tsitsikamma National Park is located on the seaward site of the site and attracts a large number of local and overseas visitors every year. In addition the park is home to flora and fauna, 90% of them endemic and rare to the area. In a radius of 10 km to the north lies the low cost housing development of Sandrift, home to about 600 people excluding informal dwellings, of which no statistics are yet available and then further north lies Woodlands, also a low-income housing development of 450 families. To the south lies Coldstream and Bloukrantz that houses about 600 families excluding informal settlers. The area is rich and diverse in flora, especially fynbos and has famous hiking trails. Most inhabitants are employed either in the National Park or in the timber industry at Boskor which produces a large quantity of local and export timber. The folks are not well educated and years of neglect by the apartheid government has resulted in devastating living conditions and high levels of illiteracy and poverty. The Koukamma Municipality has only recently been allocated Municipal status, resulting from the finalization of the Demarcation Board boundaries which resulted in several smaller rural councils amalgamating to form the Koukamma Municipality, which has now legal jurisdiction over the areas of Joubertina, Kareedouw, Bloukrantz, Stormsrivier, Woodlands, Sandrift, Coldstream, Eerste Rivier and Clarkeson. Given its fledgling position, the emergence of several housing developments has brought with it enormous responsibilities of waste disposal, especially those from households and businesses. Different forms and kinds of waste emanating from households and the local businesses would include mainly the following components and this includes medical waste from the clinics and hospitals. These waste materials range from organic (food), plastics, paper, some medical waste (household), glass, garden



refuse, infectious waste, wood, leather, rubber and metals of all categories.

## 2. Current Waste Disposal Methods

To dispose of its waste pile up, which builds up on a daily basis, the Koukamma resorts to two methods of solving the problem. The first is the landfill site practice and which sites are located strategically and away from any residential components. Continuously these sites are expanded as capacity is reached. At present the Municipality is operating two sites one, at Stormsriver and the other at Clarkeson, in the Tsitsikamma. The total waste disposal of the areas of jurisdiction under the Koukamma Municipality i.e. Clarkson, Woodlands, Sandrift, Stormsriver, Joubertina, Kareedouw and Coldstream is handled by these two landfill sites. The landfill sites are situated well off the beaten track, but given the poverty levels in the surrounding areas, it is continuously invaded by local inhabitants in search of food and items of value. Very few items of value are found, given that at least 90% of the waste comes from low-income homes. Mostly, the hungry, some of whom almost live on the site search the daily droppings for food. The sight of very small barefooted children running around the landfill site, raises various areas of concern viz health and their survival.

The sites are low-lying basins, sometimes excavated, for about 2000 square meters giving easy access to graders, trucks and other forms of transport. On a daily basis, waste is brought in giving the site a 12 hour cyclic process for 6 days a week, bringing in a total of 500 kilograms of waste every 2 hours. The Koukamma Municipality provides polyethylene bags to the households and businesses for the collection of

their daily waste. On a weekly basis, the waste trucks collect the refuse bags from designated areas on the street and transport it to the waste landfill sites.

On a daily basis, whatever waste has been collected is systematically stacked in the landfill site, so as to form horizontal layers. This daily waste that is collected and stacked is covered by a blinding sandy layer, thus giving a 200 mm cover over the waste. On a daily basis the day's waste is covered with this layer of sand.

Every six months an intermediary layer of sand blinding measuring about 500 mm in depth is laid as a cover to the waste site and finally when the site is rehabilitated, a capping of clay is put over the top and sealed off to prevent the emission of toxic gases such as nitrate and a methane which is harmful to living organisms.

This practice is however not foolproof, as was demonstrated by the case of the Love Canal incident in Niagara Falls, New York in 1980. In this case, a canal site was sold to developers who filled the canal with toxic waste and when the Love Canal residents began expanding, the developers capped the landfill site with a clay layer which they thought was impervious. The capping gave way causing residents to be exposed to methane gas exposures and which resulted in a landmark case for the residents, with the developers paying out enormous amounts in damages and also being fined. There are various ways in which even a clay cap can be penetrated either by erosion caused by rain or wind.

At present, the recycling of waste has been put on hold due to cost constraints and resource recovery is not feasible and as discussed before



in the paper, the poverty index does not give rise to discarding of any valuables. Those waste parcels that may contain some valuables will be the waste of the more affluent classes, especially that of visitors, tourists and holiday makers. But this constitutes only about 15% of all waste collected, the rest being from low-income households.

Controlled waste burning is often allowed by the Municipality, often in the landfill sites so as to minimize the pollution of the air and being a fair distance away from the residential areas. Other forms of open-burning is practiced by the local inhabitants who on a constant basis and against caution, would continue to create fires for comfort and cooking. As stated before, the practice of burning tyres continues, notwithstanding the highly toxic emissions that emanate as retrieval of wire for sale is of greater priority than health for the unemployed and starving. The Authorities are aware that open-burning is a banned practice and is only allowed under the strict guidelines of ISO 14001.

### 3. Incineration of Waste

Of recent, the Koukamma Municipality has researched various options of waste disposal other than the landfill option and open-burning practice. The third option investigated was the transportation of all waste out of the Tsitsikamma to waste disposal sites or incinerators in the Port Elizabeth area.

The landfill site option became seemingly problematic for the Koukamma Municipality for various reasons. Some of these reasons were aligned to its financial viability and others related to health risks and related issues. Given that during and after the hours of operation

the policing of the site became a huge responsibility, as it became extremely difficult to prevent the local unemployed people from scavenging on the waste that flowed in daily. Some local people had begun to squat in the nearby bushes close to the landfill site. The situation became unbearable at times when young children were seen searching through the rubbish for food. Fences were put up around the boundaries of the site, but it came under attack by the locals who continuously cut holes through the fencing to gain access to the site.

The policing of the site also failed as the security were too afraid to stand up to the inhabitants who constantly invaded the site. Therefore, the Koukamma Municipality is facing a crisis of paralytic proportions from many aspects.

Firstly, there is the legal ramifications which will result out of lawsuits from inhabitants, who might injure themselves while searching for food or valuables. The possibility of some inhabitants getting killed while off-loading of waste takes place presents a situation of nightmarish proportions.

The situation was taken very seriously by the Koukamma Municipality, when in June 2002, a young child was killed at the Arlington landfill site in Port Elizabeth whilst attempting to hang onto the side of a waste truck. The truck was en route to the dump site and the boy jumped at it hoping to be first when off-loading takes place to search the waste for food.

Secondly, the Koukamma is cognizant of the health hazards that might proliferate by allowing people to be exposed to highly dangerous and



toxic waste. Again, the health of the elderly and children become a concern. The bare-footed children open themselves up to severe exposure, especially to poisoned discarded foodstuffs, contaminated articles and contaminated clothing discarded by clinics and local hospitals, sharp metal objects and the possibility of being bitten by snakes, spiders and scorpions. Cases of children and adults suffering from food poisoning, insects bites and severe cuts are often reported by the local mobile clinics, which visit the areas close to the landfill site at Stormsriver. In addition, the spread of asthma and tuberculosis in the area, especially amongst the shack dwellers of the area has become of major concern to the Authorities. The Koukamma Municipality is aware of the fact that the resolution of the problem might not be entirely solved by closing down the landfill site, as the effects of the site on its inhabitants even if it is clay-capped, would be felt, if not sooner but later. It is however of the opinion that it would be more responsible to act now then later and thereby curb the problem at its infant stage.

The practice of open-burning has never been a generally accepted and an endorsed practice of the Koukamma Municipality, but the institution is cognizant of the downsides of such a practice, both from consultation and expert advice. The Authorities has however had a relaxed policy of allowing homeowners to dispose of their garden refuse by on-site burning and thereby largely reducing the amount of disposable waste per house.

This however was managed and controlled and notification of burning waste had to be given prior to the process taking place. In this way, there was some monitoring of the situation. However, the Authorities could only enforce the system with the registered homeowners, who

were careful about destruction to their properties, given that they owned it. But to monitor the squatters and informal settlers becomes a most daunting and difficult exercise.

Open-burning is a practice which has far-reaching and worse consequences than perhaps incineration. It takes place at fairly low temperatures providing a large quantity of dioxins and furans into the air. Dioxins and furans are produced from the incineration process of waste and unburnt chlorinated compounds that are extremely harmful to the human body when inhaled. These products are known to impair the immune system, are known to be cancer causing agents, have a serious effect on foetus formation, lowering sperm contents in males and affects the capacity of hormone producing organs. Further, the lack of basic services such as electricity and proper shelters results in the informal shack dwellers resorting to open-burning for warmth and cooking. It is also a source of income as wire retrieved from burnt tyres is sold for money. Monitoring of this process is problematic from various aspects. The first is that the numbers scattered in the bushes were not known to the Authorities and the second, that uncontrolled fires created for heat and warmth by the shack dwellers were difficult to identify and police, especially at night and weekends.

The further concern in respect of the bush communities and shack dwellers was that anything and everything that could burn was ignited without distinction. Of great concern was the combustion of tyres which burnt for longer and also produced wire for sale. Tyres produce a huge quantity of toxic air.



If open-burning is to be practiced, it has to be done in accordance with the ISO 14001 accreditation which sets down stringent conditions under which open-burning can take place.

The option of transporting waste out of the Tsitsikamma was researched by the Municipality, but shelved again for reasons of financial constraints and health concerns. Firstly, given its fragile financial position, the cost of transporting waste to areas 200 km away was deemed too costly and not viable. Several negotiations took place between the Koukamma Municipality and Eastern Cape Incineration Services who are in partnership with Waste-Tech Services, to research the transportation of waste to Port Elizabeth for incineration. East Cape Incineration Services have taken over the Municipality of Port Elizabeth's old incinerator and revamped it into a viable modern and lucrative concern. Here about 800-1200 kg of waste is disposed of daily.

Further constraints were taken into account especially that of the Explosives Act of 1956. The act is clear in so far as transportation of hazardous waste is concerned. All hazardous waste must be transported by specialist companies. The selection of waste and its transportation in combination and that which can be either combustible or explosive is disallowed. The Koukamma does not have the funding nor the manpower to separate waste, either for resource recovery or recycling. It is definitely not feasible for the Koukamma Municipality to venture out of the Tsitsikamma for disposal of waste.

Therefore, the option of installing an incinerator in the Stormsrivier area by the Koukamma Municipality began to emerge as an idea, but together



with it came not only the narrower technical issues and problems as obstacles that must be overcome, but also broader issues of value, concerns and policy. At present there are no waste-incinerators operating in the Tsitsikamma.

Incineration is a scheduled process (i.e. it is subject to a series of stringent conditions and prerequisites) and falls under the Atmospheric Pollution Act 45 of 1965 and therefore requires a formal scoping report that must be commissioned by the authorities in terms of the Environmental Impact Assessment Act 73 of This must be done before any implementation process takes place. The regulation making authorities in the Eastern Cape is the Department of Environmental Affairs and Tourism.

A single incinerator could process up to 500-1000 kilograms of waste on a daily basis, operating for 8 hours per day, not only disposing of household waste, but also that of local businesses and hospitals on a contractual basis.

The Koukamma saw this venture as a viable business, together with the fact that it could resolve its landfill site problems and that of open-burning practices.

There are however numerous legal, administrative and other issues that have to be addressed before incineration as a process can be approved, let alone be implemented. There will exist extreme polarization between those that oppose the installation of an incinerator and those that would support the project. The support or opposition to the project will be established by wide participation and consultation, especially in

informing the stakeholders whether incineration does or does not in fact affect the health of the surrounding communities. It should also be disclosed in the participation process that every effort will be made to safeguard the health of the surrounding communities.

The amalgam of several smaller municipalities results in a total population of 8000 people and of whom about 70 percent do not have basic services and infrastructure and are housed in informal shelters. There is high unemployment and a shortage of job opportunities, limited economic investment and shortage of opportunities for social and recreational activities. About 60% of the inhabitants other than those not employed by Boskor, which is the local timber producer or the Parks Board and the other smaller timber processing industries around Stormsriver, commute by foot outside Stormsriver in search of food and employment.

The Integrated Development Plan (IDP) of the area is still under compilation and it is planned that this would bring the unemployment index down to about 65%. The area has huge potential for development into a tourist destination and other related enterprises. The area can be classified as being biophysically sensitive and the protection of the non-human sphere needs to be considered seriously, as it almost makes up for the total asset base of the area.

#### 4. Requirements

A requirement for the operation of an incinerator is a registration certificate from the Chief Air Pollution Control Officer and this must be



applied for by any agency that wishes to operate an incinerator before any physical planning takes place.

Further, the application for the rezoning of land earmarked for the installation of an incinerator is a prerequisite as there are certain specific requirements that need to be complied with such as requirements from the Department of Health, which has non-negotiable set downs of distance from residential dwellings.

Then there is the Department of Environmental Affairs and Tourism (DEAT) and of course its National Environment Management Act (NEMA) and its compliances, and in addition there are numerous technical issues that must be complied with from a local government level dealing with size and infrastructure. The Stormsriver site earmarked by the Koukamma for the installation of the incinerator was originally intended for educational purposes and some stakeholders argue that the Koukamma must as a matter of course consult on the issue with the concerned school governing bodies presently formed to spear-head education facilities in the area. The site requires rezoning for industrial purposes.

In terms of the Regulations promulgated under section 21(1) of the Environment Conservation Act (Act 73 of 1989) a scoping report is required as a condition. The Minister of Environmental Affairs and Tourism has identified that the defined environmental scoping assessment process should be followed for a number of listed activities. An environmental assessment must be conducted for “The change of land use from use for nature conservation or zoned open space to any other land use.”



The proposal to install an incinerator must also entail conformation to the terms of Section 20 of the Environment Conservation Act 1989, which prescribes the process of disposal of waste. “The disposal of waste” means the discarding or disposal of any matter whether solid, liquid or gaseous. The Koukamma Municipality is therefore faced with the compounded problem of firstly, disposing of waste by the proposed incineration process and further has the added responsibility of assessing the effects of the by products i.e. the emissions on the environment and community.

The objectives of section 21, 22 and 26 of the Environment Conservation Act, Act 73 of 1989 are firstly, to ensure that the environmental effects of activities are taken into consideration before decisions in this regard are made and secondly, to promote sustainable development, thereby achieving and maintaining an environment which is not harmful to the health of citizens.

In keeping in line with the above objectives, it tends to monitor identified activities which are undertaken and which do not have a substantial detrimental effect on the environment and prohibits those that will. It further tends to ensure that the public participates in the undertaking of identified activities and finally requests that the process of reporting enables the Minister or his designated competent authority to make informed decisions on activities.

In particular, the Atmospheric Pollution Prevention Act, Act 45 of 1965 becomes pertinent and relevant to this project. The act provides for the prevention of the pollution of the atmosphere from any source. As a requirement, the Authority or implementing agent will be required to

submit firstly, a plan of study for scoping of a scoping report. The plan of study for a scoping report entails the description of the tasks to be performed, a timetable for the task, consultation with the Authority, and an outline of the method of identifying issues and alternatives. The authority then reviews the plan of study and on acceptance, the implementing authority will be requested to submit a scoping report to the approving body.

The scoping report covers a brief description of the project, effects of the proposal on the environment, a description of the environmental issues identified, a description of the alternatives identified and details of the public participation processes. The scoping report is reviewed by all parties and if necessary would require a specialist's review, in the case where the issues are of a highly technical nature and the relevant assessing authority lacks specialist capacity to assess the reports.

Should the scoping report be accepted as adequate, the authority (implementing) could proceed to the implementation planning stage. The assessing authority could review the scoping report and decide to request the developer or implementing authority to submit a full Environmental Impact Assessment (EIA). The EIA could call for firstly, a plan of study for the EIA and further to this, after approval of the plan of study for an EIA, a full EIA report would be requested. This EIA would include the following; a description of each feasible alternative, assessment of impacts, determination of significance, mitigation, addressing of key issues and a comparative assessment of feasible alternatives and appendices. The approval of the EIA is done in the shortest time possible so as to reduce the costs to the developer or



implementing agent. Should the authorities not approve the EIA, an avenue to appeal against the decision is open to the implementing agent.

It is understandable that the full impact of the waste treatment incinerator can only be undertaken once the construction is complete and the plant is up and running (Hattingh and Landman, 2001: 5). However, all necessary licenses to operate the plant as a requirement of the implementing authority must be obtained.

The emissions at stack level is directly dependent on what is fed into the incinerator. Therefore, separation of waste prior to incineration is a crucial factor in controlling the types of emissions that might be given off. Generally, normal household waste would emit Carbon monoxide (CO) or Carbon dioxide (CO<sub>2</sub>), given the much higher moisture content of household waste being organic materials including some tin.

Non-organic matter such as Poly Vinyl Chloride (PVC) converts to hydrochloric acid (HCL) under extreme heat and emits chlorine gas. This kind of emission is regulated in terms of the DEAT guidelines. Batteries and metals such as nickel, copper and lead have high emissions levels and are regulated in terms of emission amount under the DEAT Guidelines.

The emissions levels are also dependent on the size of the installation. An incinerator size such as the Macro Burn c500 can treat about 220 kg of waste per hour which might be municipal solid waste and refuse. The cost of such an installation is between R800 000 – R900 000. Larger installations which could double the treatment volume could cost in the 2 million Rand bracket.



A level up from the Macro Burn c500 is the high-tech addition of an emission gas cleaning system (EGCS), which could cost an additional 2,7 million Rand. However, this additional component would reduce the extent of the harmfulness of the gases which might otherwise be emitted into the open air, by a cleaning out process and is termed a “scrubber”. This aspect however, raises certain questions of affordability and repayment. In addition, the additional questions that rears its head is the issue of justification and priority and whether the money is needed elsewhere for easing the life of the communities.

## 5. Nature Conservation Status of the Area

The Tsitsikamma National Park is situated in the heart of Stormsriver and the Garden Route and lies in the Southern Eastern Cape. Tsitsikamma is a Khoisan word meaning “place of much water”. The Khoisans were the early inhabitants of the area. The word is an amalgamation of two groups of early inhabitants, the Khois and the Sans. The Tsitsikamma National Park lies adjacent to the site intended for the waste-reduction incinerator proposed by the implementing agency and home to these early inhabitants.

The National Park has a coastline of almost 80 km, mostly rocky with spectacular sea and landscapes, remote mountainous regions with secluded valleys covered in untouched mountain fynbos and temperate high forests and deep river gorges leading down to the sea. The spectacular scenery includes the Indian Ocean Breakers, 180 metre high cliffs, evergreen forests and fynbos (proteas and heath). Untouched ancient rivers have carved their way into the oceans through the rocky

ravines. All this conspires to attract international tourists by the thousands to the Park, which is the third most visited park of the 20 in South Africa. It also is one of the few parks that operate profitably in South Africa, making significant contributions to the economy as a whole, in comparison with the other such parks in the country. The Park conserves a considerable number of the natural biota (living organisms) of the Garden Route and the Tsitsikamma.

The primary vegetation (biomes) consist of mountain fynbos, coastal fynbos, afro-montane forests and marine herb land including inter-tidal and sub-tidal zones. The mean annual rainfall is about 1200 mm.

The Park protects an amazing array of inter-tidal and marine life. This protection of marine life is one the largest single “no take” unit (including fishing), Marine Protected Areas (MPA) in the world, conserving about 11 percent of South Africa’s temperate south coast rocky coastline which provides a natural laboratory for the fisheries baseline research on endangered line fish species. When proclaimed in 1964, it became the first Marine National Park to be proclaimed in Africa. The Park is covered up to 30% of its size by the fynbos scattered amongst the forest vegetation. There are also a host of beautiful flowers including proteas and heath.

The marine life and forests were relied on quite heavily by most of the local communities and this has been historical. These two eco-systems became a prime source of resource utilization for the local people. This utilization was of obvious economic value as whole communities survived from it. This practice is now incorporated into the Park and in turn the National Park contributes in another way to economic



development of the region. The Park attracts tourists to the area and in turn provides opportunities for local entrepreneurs (local trail guides, adventure operations, transport services, infrastructure development and maintenance services etc.). It is also the implementation agency for the poverty relief programme *Working for Water* (Invasive plant clearing) and *Coast Care* (Coastal Conservation). Both are operated from the Park.

In addition the Tsitsikamma National Park incorporates various cultural heritage sites, ranging from Khoisan cultural heritage sites such as ruins of small fisherman villages of recent to the older caves, shell middens and rock art. Remnants of the past forestry industries and grave sites are preserved and used as tourist attractions.

A cultural mapping project is presently under way with the aim of identifying and protecting all cultural heritage sites incorporated within the Park. In addition, an Oral History Collection project is currently under way to recover and interpret information relating to the area's cultural heritage. The more recent history of the Park and the local fishing industry is still in people's memories, especially the older folks from the area. It is one issue that gives a positive connection to the Park and the community and is seen as a catalyst to enhance relationships. These processes are seriously driven in conjunction with local community members and the various organizations that represents the community interests, as well as all the relevant academic institutions and research bodies.

In 1962, at the First World Conference on National Parks in Seattle, the World Conservation Union (ICUN) appealed to Governments to



establish marine parks and reserves. The National Parks Board immediately responded by proclaiming the Tsitsikamma National Park as a conservation priority. The original Coastal and Forest National Parks were proclaimed in September 1964, by the Minister of Forestry in conjunction with the Director of National Parks Boards (Government Gazette, No 963 of 4 December 1964). The original length of the coastal park extended for about 59 km between Groot River at Natures Valley and also included the areas approximately 800 metres landward and 800 metres seaward of the low water mark.

In September 1983, the boundary on the seaside of the Park between the Groot River East and the Bloukranz River was extended to three nautical miles and the remainder (Bloukranz to Groot River West) changed to 0.5 nautical miles offshore. (Government Gazette, Proclamation no 125 of 1983)

The Small Tsitsikamma Forest National Park was deproclaimed in 1989 (Government Gazette, No 577 of 31 March 1989) and the Coastal Park became known as the Tsitsikamma National Park (TNP). In 1987 the De Vasselot Reserve (2561 ha) was added to the Park (Government Gazette No R100 of 17 January 1987). During April 1996, an extension of the seaward boundary was proclaimed as part of the Tsitsikamma National Park. This section extends from Groot River West along the same seaward boundary to a point parallel to Grootbank and then back to Groot River West along the high water mark. Contractual areas (schedule five National Parks) have subsequent to the original proclamation, also been added to this Park. During March 1995 erven 382 and 444 and the remainder of erf 434 Natures Valley were added to the Tsitsikamma National park as contractual areas. The farm

Buitenwachting was gazetted as a contractual National Park in 1996. In October of 1991, a 30 year lease was signed for the neighboring Soetekraal area (24372 ha) with Rand Mines Properties. This resulted in a massive total square area of 30 000 ha which is today known as the Tsitsikamma National Park.

The Park has a spectacular array of fauna mostly endemic only to the Park. Amongst these are the caracal, genet, chacma baboon, dassie and mongoose including other small mammals.

The Tsitsikamma National Park and Forest is part of the Cape Floral Kingdom, one of six such kingdoms in the world and the smallest of the group. So the impacts of the setting free of dioxins and furans through incineration on the flora and fauna of the Park would raise serious concerns from the relevant stakeholders.

The possibility that the Park's many animals, birds and insects would be slowly made extinct from the effects of pollution over a period of time of course calls for scientific studies to substantiate this issue. It would also apply to the rivers and other water sources which would be affected by constant pollution and dust, making the rivers undrinkable and also will have a devastating affect on all forms of marine life.

## 6. Tourism Potential of the Area

The Tsitsikamma National Park and its surrounds extending up to the Bloukrantz Valley lies right in the middle of South Africa's garden route. It must surely rank as one of the prettiest game parks in the country. Cliffs and beaches bound a narrow coastal plain together with vast



stretches of fynbos (characteristic Cape vegetation), including woody shrubs, heath, protea, geranium, stinkwood and the giant Outeniqua yellowwood tree. All in all, about 7700 species of plants cover much of this area.

The Tsitsikamma offers an amazing range of really worthwhile experiences both for local and international tourists. A choice of quiet relaxing areas are offered on its beaches or exciting surfing, canoeing, swimming, hiking or bird watching. The area has it all. For the marine lovers, quiet tidal pools and clear blue waters offer a wealth of aquatic life and well planned “scuba trails” mark areas where the underwater panorama is at its best.

On land, there is just as many exciting things to do for the tourist and visitor. These are the deep gorges, temperate forests which are crisscrossed by hiking trails and which includes the famous 5-day Otter Trail. This trail winds its way along the shoreline providing the ideal setting for wildlife watching, both terrestrial and marine. The trail starts at the Stormsrivier Mouth (the site of the proposed incinerator) and covers Natures Valley, offering 41 caves, cliffs and waterfalls. Dolphins and whales are in abundance everywhere in the ocean. Caracal, genet, chacma baboons, dassie, mongoose and other small land mammals abound. The Tsitsikamma has a few very rare and prominent birds such as the African Black Oystercatcher, the orange breasted Sunbird, the Nerina Trojan and the colorful Knysna Loerie. The Cape’s clawless otter is also found here, after whom the trail is named.

The Park’s entry fee is very competitive and for foreign tourists it offers a cheap and safe adventure. The Otter Trail and other attractions are

immensely popular and often overbooked. The Park is 195 km from Port Elizabeth and 615 km from Cape Town and being serviced by excellent roads, makes it ideal to travel by bus or coach. The Port Elizabeth airport offers connections to international airports such as Johannesburg, Durban and Cape Town.

The Park is accessible throughout the year and has a temperate climate making all kinds of sporting activities feasible. The various businesses in the area such as the Stormsriver Adventures offers various experiences to local and international visitors. Black water tubing, canoeing, cycle tours and bus tours, including game watching, is offered on a daily basis. The world famous bungi jumping is offered at the Bloukrantz Bridge, which also now offers in addition, a craft center and tourist accommodation.

Accommodation of different categories is offered. These range from tents and caravans to conference facilities. Public telephones, shops, restaurants, a garage, laundromat, a medical clinic with doctor and other facilities lie in a radius of 40-50 km. The Otter Trail has cottages for overnight visitors. Up market chalets aesthetically constructed by the locals from the area serve as luxury accommodation at Stormsriver, next to the Bloukrantz. Elsewhere in the Park is a Olympic size swimming pool, tarred roads and two beaches, making an exciting wilderness destination of international standards for any visitor. Seaside cottages, log cabins, guest houses and campsites are among the other options available as accommodation.

This area has international tourism appeal given its vast natural and tourist related attractions. Although international tourists are always



seeking to get away to areas of pristine conservation and naturally intact areas, they are also concerned with sophistication of waste control and its effects on the natural environment. So, whilst the idea of improvement on the existing waste-reduction system might be at first glance acceptable and lauded, the real impact of an incinerator can only be measured after it is in operation (Hattingh and Landman, 2002: 5). It would be that issue which would raise areas of concern and questions which might be asked as to what impact and effect such an installation might have on tourism and the natural environment and human life. The prediction that it could have negative impacts on the whole tourism industry is a notion not to be scoffed at. This issue is fully debated later in the paper.

## 7. Attitudes and Divisions in the Community

Strong polarization amongst the community is a factor not to be dismissed glibly. The debate will divide the community with some arguing for the project because of jobs being created, whilst others might be speaking on behalf of the project initiators. Against this argument may rise the opposition who might genuinely see the negative effects of such a proposal. Whilst the younger folk see the installation as an advanced way of handling waste, the older folks argue that the effects that the emissions will have on their health is unknown. The squatter community opposes the idea, given the various benefits they derive from the landfill sites, for example food and some valuables. Businesses see the project as a means to end their nightmare of waste-pile up. The more enlightened folks argue that the money could be well-spent on other more pressing needs of the community such as schools, clinics and crèches or even the provision of proper housing for

squatters. These issues will however be debated in detail in the concerns of the stakeholders.

## 8. Social Conditions

The total population of the 8 areas under the jurisdiction of the Koukamma Municipality is about 8000 inhabitants. The six towns are Kareedouw, Joubertina, Woodlands, Stormsrivier, Clarkeson and Bloukrantz. The 8000 people are comprised of 40% blacks, 45% of coloured, 2% of Indian origin and 13% of white origin. It is apparent therefore that about 87% are previously disadvantaged people who have never had the vote before 1994. These people lacked proper housing, schools and employment opportunities.

About 90% of these previously disadvantaged folks lived in formal shacks or were scattered in the bushes in various parts of the Tsitsikamma. Living conditions were unacceptable as the sick and elderly and school going children did not have secure and weatherproof dwellings, no electricity or heating and lacked basic infrastructure and services.

With the advent of democracy, hope came to these forgotten people. The new government began the Reconstruction and Development Program (RDP) in fits and starts. The wheels of democracy moved very slowly for these inhabitants and some 8 years down the line, although formal structures for about 60 percent of the people have been built, other amenities such as schools, clinics, crèches and basic infrastructure is still lacking. Employment opportunities are almost nil in the Tsitsikamma, resulting in about 70% unemployment factor. The only



employment available and which is also limited is on farms and the Park, or in the forestry sector. Here the pay is low and given the waiting list for jobs, most people keep their jobs even though the pay is low.

The damp conditions in the Tsitsikamma and the starter unit homes give rise to related illnesses amongst the elderly and children. In addition, there are no hospitals or clinics nearby. A mobile clinic visits each area once a week. There is however, a move by the Public Works Department to target the Tsitsikamma as a poverty pocket and various initiatives are being planned to improve the health and social lives of the people.

Against this backdrop, the proposal to install a waste-reduction incinerator may be highly controversial. Jobs, may however, be created in the various sectors of the project and this may be welcomed by the starving and unemployed, but the deeper effects of long term impacts of the by-products and emissions from the incinerator may be a greater concern to the people.

## CHAPTER III

### EXPLICATION OF MORAL DILEMMAS

#### 1. Human Rights and Justice

##### 1.1 Introduction

We live in a democratic and developing country where there is a necessity to systematically examine and analyze the values relevant to decision-making in terms of environmental issues and the overall understanding of the type of management that is required. To fulfill these duties adequately and competently, this approach does not only require our narrow understanding of the matter but also our broader insight into the values and relevant concerns of the relationship between humans and the natural world. We should, as a responsible member of this ecosystem be cognizant of the natural, physical and built environment in which we as humans exist. It is therefore, important to review our rights and obligations and show equal respect for the living organisms of the environment, for example plants and other living organisms, other than humans such as water and atmosphere and examine their physical, chemical and aesthetic cultural properties and establish various levels of relationships between these elements. In doing so, several moral and ethical issues will emerge, and that would guide our decisions and actions. This is especially so, when a proposal such as the installation of a waste-reduction incinerator, which could impact in various ways on the relationship between man and the environment and more especially with the moral and ethical dimensions of this



relationship, hits the debating floor. The focus therefore, shifts to the kind of impact our actions will have on our living space and the ecosystem as a whole. There would exist a strong need to identify the relative issues of morals and ethics, which is prevalent in this sphere of human life, in which fundamentally the distinctions between right and wrong, good and evil, and the search for what is termed the “good life” exists (Hattingh and Landman 2002: 1). It further deals with principals of favour which we as humans would like to subscribe to and feel a strong allegiance to. The moral dimensions of our existence will therefore come under severe scrutiny and testing in this case (Hattingh and Landman 2002: 1). It would further require us to justify reasonably those impacts of our actions and provide acceptable and justifiable grounds for them.

## 1.2 Bill of Rights

The history of injustices in South Africa is the point of departure for this perspective. In the old dispensation prior to the 1994 elections, the advantages given to one sector had a devastating and some irreversible effects on the other sector and this compromised most black South Africans. These people suffered for freedom and justice and those who had worked hard to build our country into the democracy that it is. The Constitution of South Africa and the Bill of Rights was formulated to protect, respect and promote and fulfill the rights of all its citizens. Read together with common law, it was infused into a newly formulated set of constitutional values. Further, the Bill of Rights suggests the concept of equality and egalitarianism. The protection of and advancement of people who were victims of unfair discrimination was entrenched in the view of reducing the past inequalities and levelling the playing fields.

The environmental sector was identified as one such area where these inequalities which previously found expression in the dismal environments in which the disadvantaged lived, bearing the impact of non-sensitive decisions of being pushed hard up against the fences of industries and conservation areas, or on land with several highly complex obstacles. For example, the Cape Flats, with its wind blown sands or Bethelsdorp, in Port Elizabeth which has the highest expansive clay conditions in the Eastern Cape. Here, the cost of foundations are nearly that of a small living unit in the Western suburbs of Port Elizabeth. The Stormsriver housing development is situated near a quarry which was active at its inception and only with lobbying saw its closure.

The Bill of Rights also deals with the relationship between environment and people. Whilst the State has a right and obligation to promote economic growth, it should also protect the health and well-being of life and take reasonable steps to ensure this happens especially by legislation. Therefore, the application of laws must be based on sound information and careful considerations for the well-being of human life. The socio-economic conditions at Stormsriver is a bleak picture of high unemployment, poor healthcare and breadline existence. The installation of a waste-reduction incinerator will emit high doses of dioxins and furans into the air. In precedent cases in the USA, dioxins were found to cause cancer in people coming into constant contact with it and Tuberculosis, in those countries where waste is dumped. As this installation is to be built in a low-income and impoverished community context where the people are unfamiliar of the true effects of the impact, the question begs as to whether this action by the authorities would be justified on moral grounds. To those people who are vulnerable and



disadvantaged, is it fair to distribute environmental costs (i.e pollution) in this way?

### 1.3. National Environmental Management Act (Act no 107 of 1998)

The National Environmental Management Act (NEMA) was assented on 19 November 1998. NEMA's main role was encapsulated in its preamble, which reads as follows: "Whereas many inhabitants of South Africa live in an environment that is harmful to their health and well-being:

- a) everyone has the right to an environment that is not harmful to his or her health or well being;
- b) the State must respect, protect, promote and fulfill the social, economic and environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities;
- c) inequality in the distribution of wealth and resources, and the resultant poverty, are among the important causes as well as the results of environmentally harmful practices;
- d) sustainable development requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves the present and future generations;
- e) everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation;
- f) promote conservation; and

- g) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development;
- h) the environment is a functional area of concurrent national and provincial legislative competence, and all spheres of government and all organs of state must cooperate with, consult and support one another.”

NEMA acknowledges that the resultant poverty pockets are as a result of environmentally harmful practices. It also cites that sustainable development should be the integration of social, environmental and economic factors in planning, implementation and evaluation especially in decision-making to ensure that all development serves the present and future generations. Everybody has the right to the protection of the environment and not just a few, for the benefit of the present and future generations. The Act also cites the securing of ecologically sustainable development and use of natural resources while promoting justifiable economical development.

Finally, additional to the above and relevant to our discussion is the stipulation that the law should establish certain procedures and institutions to organize and promote environmental governance of environmental law. In summary then, NEMA’s position so as far as the human factors are concerned when it deals with the impact of our actions are the wealth of people, equality (in health distribution), sustainable development, prevention of population and ecological degradation, ecologically sustainable development and civil society participation in environmental governance and enforcement.



The question that begs is whether NEMA can be interpreted broader than the present narrower legislative and administration issues and does it adequately alert us to the moral and ethical concerns inherent in its application? From a narrower and technical management perspective, it may look adequate at first, but deeper down serious morals and ethical questions arise, such as the protection of human life, as NEMA only serves as a guideline. Absolute protection of well-being is not guaranteed.

NEMA places people at the forefront of concern in terms of environmental management. The ecosystem is an amalgam of the human and non-human world. The consideration of any kind of any effects should be spread equally over people, animals, birds and insects, and plant life, in fact the whole biota. This raises a series of moral and ethical questions at different levels of understanding. The anthropocentric (human centered) partiality of NEMA (i.e. the concern for man only) is a moral dilemma that needs further discussion. The biotic community, apart from the human, are life forms of different living organisms which also have life cycles.

Do humans have rights and are they alone worthy of moral considerations and respect? Because the inhabitants of Stormsriver don't happen to belong to the affluent classes, are they supposed to be treated with less respect and dignity? These questions emerge as we consider the position of a community adjunct to which a waste-reduction incinerator is being proposed at Stormsriver. The Old and New Testament themes do portray man as superior to animals and other living organisms. Because man was created in the image of God, the inference is that other living organisms were created for his pleasure

and use (Genesis 1: 26). The moral dilemma emanates out of the varied understanding of this theme by a great many people. Immanuel Kant's humanitarian ideals of respecting the freedom and dignity of every person serving the well-being of other human beings, enhances not only the special place given and reserved for human beings at the present time, but also takes into account the interests of fellow and future human beings (Olen and Barry 1999: 400). In specific to the moral dilemma at hand and in terms of the broader issues that rise out of the debate in respect of the proposal to establish a waste-reduction incinerator at Stormsriver, various concerns surface:

- i) The rights and dignity of the community and the violation thereof;
- ii) The rights of the community to clean air and a safe environment;
- iii) What is the present government's policy of locating communities;
- iv) What are the basic issues of poverty, land, hunger, development and environment from a human point of view;
- v) What is the present government's moral obligation to the breaking of poverty cycles in the country;
- vi) What expectations subsumes in terms of the present, future and preservation of dignity other than that of man.

Pure anthropocentric philosophy begs the questions whether the rights of man are to be disregarded when it comes to comparing it to animals and the natural wilds. Western philosophers have done little to bridge this gap and it is around this that they have constantly shown man being given preference to, above other living organisms (Olen and Barry 1999: 403). Immanuel Kant stressed that only people be given moral respect above all living organisms (Olen and Barry 1995: 403). Other philosophers like Tibor R. Machan highlighted the importance of



valuing humans above all other living beings, stating that rights and liberties are political concepts applicable only to human beings, as humans being moral agents, need a moral space to undertake and complete their life tasks. Further, he says that human life is a moral task for which we can be held responsible (Machan 1991: 432).

There is no doubt that there is a moral and ethical obligation of the State and its agencies, such as the municipalities to consider the plight, poverty and pathetic living conditions of the Stormsriver Community when decisions are taken, in respect of installing a waste-reduction incinerator at Stormsriver. But should its concerns go broader than just containing it to needs only?

## 2. Animal Rights

### 2.1 Introduction

The Tsitsikamma boasts a number of tourist attractions generally created by the abundance of different species of marine life, animals, insects and bird life. Dolphins and whales can be spotted close to the shore in unspoiled waters and there is an abundance of fish life, both in the sea and its rivers. This area has South Africa's first Marine Park and stretches for about 80 km of untouched coastline.

The Tsitsikamma has a wonderland of inter-tidal and marine life and is one of the largest single "no take" unit of Marine Protected Areas (MPA), in the World conserving 11 percent of South Africa's temperate south coast rocky shoreline and providing a natural "laboratory" for the fisheries baseline research on all kinds of endangered line fish species.

The Tsitsikamma National Park ranks as one of the prettiest game parks in the country. The Park is a haven of animal and bird species, amongst those are the caracal, genet, chasma, baboon, dassie, mongoose and other small land mammals. The African Black Oyster Catcher is one of the rare and prominent birds found in the region, including the orange-breasted sun bird species and the Nerima Trojan, including the colorful Knysna Loerie. Another unique and famous animal is the Clawless Otter, which has a hiking trail named after it. The Park is an international tourist destination and well marketed overseas.

## 2.2 The Moral Consideration of the Rights of Animals

The South African National Parks Board (SANPB) and environmentalists of the area are of the opinion that the impacts of the waste-incinerator in the Stormsriver area will have a negative impact on animal and bird life, as the chances are high of clean air being polluted, rivers being contaminated and plants which serve as food, being affected by the dioxins and furans and other toxins emitted by the incinerator. There are presently about 881 bird species in the Park. In addition, there are 12 species of marine mammals, from whales to the Cape Turseal and 33 species of terrestrial mammals, from the Chacma Baboon to the Greater Musk Shrew. About 13 species of amphibians, ranging from the Common Plant Frog to the Painted Reed Frog inhabit the forest. Scientists have established that the forest is also home to 27 species of turtels, snakes and lizards. All of these species are secure within the habitat making the forest, rivers and seas their home and source of food and water.



The question begs as to whether these animals, mammals and reptiles together with the insect and bird life, deserve moral consideration or do they have any rights? These are the moral dilemmas that emerges when the debate arises around the proposed installation of a waste-reduction incinerator is proposed into this environment and when the effects of the impact of emissions start to have negative effects on these animals and their habitats. Do they deserve a higher moral consideration, in so far as considering that they are living organisms as well? Many activists believe that a fundamental belief in the minds of most Western beings is that animals are here for use by human beings and not worthy of any moral consideration. Genesis 1: 26 states, “fill the earth and subdue it. Be masters of the fish of the sea, the birds of heaven and all living creatures that move on earth.” The Old and New Testament holds that animals are primarily put on earth for man’s use and pleasure. René Descartes, a moral philosopher argued that “non-humans are no better than biological robots incapable of feeling any sensation, even pain” (Olen and Barry 1999: 403). Immanuel Kant, though anthropocentric in his views (putting man first in concern), did object to the cruelty shown to animals, but only for the reason that it would develop an insensitive human being (Olen and Barry 1999: 403). The question then begs whether animals should be given moral consideration?

### 2.3 A World With no Animals

Eco-tourism is perhaps the most sustainable business in the Tsitsikamma. The various businesses including the National Parks Board employ about 90% of the employable inhabitants of the Tsitsikamma. Three main attractions invite thousands of local and international tourists to the area. There is firstly, the Game Park and its associated

attractions, then there is the marine life and lastly there is the tranquillity of nature. Millions of dollars and pounds are spent by foreign tourists each year on these attractions, bringing the biggest income to the area. By far, the Game Park is the biggest attraction especially with its famous Otter Trail. Then there are those that come to just watch the exotic birds.

Should the Game Park now just become a park with no birdlife or animals? At least 40% of the tourism related activities will come to a halt, resulting in high unemployment and further poverty to the people of the Tsitsikamma. It would be a moral mistake to let this situation occur, especially the eradication of our game, wildlife and fish. Therefore it does raise moral questions in that would it be morally and ethically correct to remove the very source of income and food for the poor, hungry and unemployed. It must therefore be carefully considered whether the installation of a waste-reduction incinerator at Stormsriver would not threaten the lives of the animal species, removing that which is the source of food and comfort to man.

## 2.4 Ethical Extensionism

Conventionally speaking, ethics is a domain reserved for humans, given that humans can only distinguish between right and wrong, moral and immoral and therefore can be held accountable for their actions. That which now begs the question is whether humans are the only ones who should be given moral consideration and whether consideration should be extended to animals as well. These issues need elaboration and should the authorities view these factors ethically, the following understandings by some environmentalists can be considered.



Many environmentalists reject the restricting of moral consideration to humans only and propose extending it to some animals, especially Jeremy Bentham who argues for this extensionism (Fox 1995: 149-150, 162). Opponents argue that for this consideration, belief in God, possession of soul, rationality, self awareness and free will and capacity to enter into relationships and also the capacity to protect the future must be evident. However people like Bentham argue that if this criteria excludes animals, what about the primitive people, infants, the senile and the comatose who do not qualify within this criteria and if the criteria is to be followed stringently, then moral considerations should not be extended to these people because they will in addition, have no intrinsic value but just instrumental value. If this is an accepted process, then the exploitation of these people would happen. This would in turn, then, force us to lower the entry level of acceptance for moral considerations (Fox 1995: 163) and if this is done then certain animals could be morally considered.

But the dilemma is as to where one should draw the line. Advocates of extensionism argue that the criteria for acceptance into the realm of moral consideration should be sentience, that is the capacity to sense perception or the capacity to feel and perceive issues. If any entity is sentient, it has interests. It seeks pleasure and avoids pain. If an entity is not sentient, it cannot have interests of its own and deserves no moral consideration (Fox 1995: 163-164). The main ethical task is to ascertain if a being is capable of suffering or not (Fox 1995: 164). Tom Regan and Peter Singer argue that extensionism should not be read as an argument to maximize pleasure for sentient beings, rather the reduction of pain for these beings. Singer calls for the moral consideration of all

sentient entities (Singer 1975: 416). There is however, no understanding as far as insects are concerned, but he advocates that there is no reason to ignore suffering. Singer argues against eating of and experimentation on animals (Singer 1993: 54, 55, 58).

Tom Regan is more instructive and links the possession of rights as a criteria of an entity's consideration. Regan further considers psychological identity over time as a criteria to give more consideration to mentally normal mammals of one year and more. Regan rejects scientific experimentation on animals in science, totally abhors commercial agriculture and propagates the abolition of sport hunting and fishing (Regan 1995: 79).

Both writers jog our awareness that past practices should not be tolerated. Animal slavery is likened by them to human slavery. They seek for a change in our conduct. From the anthropocentricists point of view, this is very difficult to accept. The argument being that rights and concepts that are at home in the human world, could not be extended to animals. (Hattingh 1999: 68)

Peter Singer and Tom Regan have written widely about "animals rights" and the common ground reached by both is that animals are worthy of moral consideration. Of recent the proliferation of animal rights groups and lobbying organisations have made the issue of animal rights a red hot debate worldwide. Peter Singer's book, *Animal Liberation* (1975) compares his concept of speciesism to racism and sexism and postulates that although there are basic differences between humans and animals, this does not mean that the basic principle of equality should not be extended to non-human animals. According to Singer, equality requires



equal consideration, but not necessarily same treatment and that equality is a moral idea not an assertion of fact. Equality is a prescription of how to treat humans. The principle of equality therefore, according to Singer, should extend to all humans and non-humans under equal consideration.

Singer postulates that discrimination of race and gender and its campaign should extend to non-humans and is what he calls speciesism. His argument that if intolerance is shown for humans of higher intelligence exploiting those of lower intelligence for their own ends, then why can tolerance be advocated to non-humans for the same purpose (Singer 1975: 415). Equality as seen by Singer, revolved around suffering, no matter what the nature of the being. As long as we remember that we should give the same respect to the lives of animals, as we give to the lives of those humans at a similar mental level, we shall not go far wrong (Singer 1975: 415).

Tom Regan on the other hand does not believe that we should search morally for less pain and more pleasure and being not a utilitarian, opposed Singer's philosophy. Regan agrees that the suffering of animals should not be tolerated and holistically concludes that the merits of each case is not important but rather the whole system that somehow views animals "as our resources, here for us to eat, surgically manipulate, and exploit for sport or money" (Regan 1985: 424).

Rejecting this system, Regan argues that the "right view" which sees the equal treatment of humans no matter what, should also be extended to animals as all are conscious creatures, having an individual welfare that has importance to us, whatever our usefulness to others. Our awareness

are dimensions of life that make a difference to the quality of our lived lives and experiences of ourselves as individuals. Animals also go through the same suffering and pain and are experiencing subjects also and have inherent values of their own (Regan 1985: 429). All animals should be treated with equal respect that is shown to humans and fellow men.

Tibor R. Machan although not an animal rights activist himself, showed sympathy to animals by being quite vocal about humans who showed the “reckless disregard” for the life and well-being of animals (Machan 1991: 434).

His criticism was rather incisive in that he labeled these humans as having “defective character” and “lack of insensitivity and callousness” and concludes that at the same time humans justify the killing and use of animals in the many ways that “most of us do use them” (Machan 1991: 434).

Another anthropocentrist, Bonnie Steinbock was of the opinion that humans deserved greater respect and regard over animals, but went on to further state that entities that possess no rights must not be regarded to have no interests and must be counted just as humans are (Steinbock 1978: 440).

In summing up, it is felt that the views of the various philosophers and activists raise very interesting and heated debates and each, from Singer to Regan or from Machan to Steinbock have very personal attitudes to their stand point.



However, we must conclude that the killing of animals for whatever use raises serious moral dilemmas and personally I feel that animals are worthy of moral consideration and especially when it comes to pain and suffering and the eradication of certain species that inhabit our land.

Now, should the Koukamma respect the view of the extensionists and accept that animals have rights and interests and can feel pain and suffering and that moral considerations should be extended to these ethics. In this respect, the following needs consideration:

- a) The decisions made should not impact adversely on the health of the animal kingdom within the Tsitsikamma area.
- b) A very well cautioned and risk averse approach should be adopted.
- c) A well- informed decision-making process should duly consider, the impacts on animals.
- d) Factual, sound and researched information in respect of the animal population should guide all decision-making.
- e) Higher levels of integrity in all decision-making processes.
- f) The appointment of suitable consultants to make an in-depth study of the fauna in the area and make suitable recommendations.

### 3. Protecting the Tsitsikamma Eco-system and Conserving Bio-diversity

The Tsitsikamma National Park is part of the Tsitsikamma National Forest and is situated at the southern most tip of the Eastern Cape. The Park and Forest forms part of the Cape Floral Kingdom and given its bio-diversity it is considered as an area of global conservation, earning its place amongst the “hot-spots” of the environmental world.

A “hot- spot” is defined as an area of high sensitivity and protection value. About 30% of the Park is covered by fynbos which is a protected plant species of the Cape Floral Kingdom. In total the Park has 7700 species of rare and endangered plants, some of which are not found anywhere else in the world. The Cape Floral Kingdom is characterised by an exceptional plant diversity at both community and species level (Cowling 1995: 4). The Park and its surrounding vistas are spectacular and is an international and local focus for recreation and sport, attracting about 10 000 international tourists every year. The Park has a 80 km coastline with spectacular sea and landscapes, with secluded valleys and deep rivers. The Park conserves a considerable portion of biota (all living organisms) of the Garden Route. The primary vegetation (biomes) consist of Mountain Fynbos, Coastal Fynbos, Afromantane Forest and Marine herbland. With a mean annual rainfall of 1 200 mm it is perhaps the most valuable natural biodiversity in the Eastern Cape.

The Park is rich in cultural heritage sites, ranging from Khoisan cultural heritage sites such as caves and rock art, to the more recent fisherman settlements and processes are under way to declare the Park as a World Heritage site. This will further attract and boost tourism and provide an economic boost for the Tsitsikamma Region. The word Khoisan is an amalgam of the words “San” and “Khoi”, referred to, an indigenous race that were the original inhabitants of the lower western parts of the Eastern Cape and the Western Cape.



The Tsitsikamma is all these things and more. However, it is also the site for the proposal to install a waste-reduction incinerator for the Tsitsikamma Region. The option to investigate this project has been debated against the two major options of current practice viz., the landfill site and the open-burning practice. What effect will such a proposal have on the eco-system as a whole and will it be a negative or a positive factor? The issues go beyond the narrow technical and administrative approaches and encroaches on values and concerns for the living organisms of our biota.

Aldo Leopold, a founding member of environmental ethics introduced the concept of a “land ethic” in his book, *A Sand country Almanac* which was published in 1949 after his death. The central idea of his theses was that humans were just members of the biotic community which includes soil, water, plants and animals and our actions should be for the benefit of the community as a whole. He reduced the role of humans as dominant members to just a plain member or a citizen of the biotic community. It also implies equal respect for fellow members of this community, (Leopold 1949: 204). “Egological Conscience” was evident in his land ethic and is a reflection of each person’s responsibility to the land. Leopold stated that “Health is the capacity of the land for self renewal. Conservation is our effort to understand and preserve this capacity” (Leopold 1949: 221).

*A Sand Almanac* which has been interpreted as environmental holism by philosophers such as Warwick Fox and has been highly criticized for reducing the role and position of humans beings and hereby theoretically placing on obligation on the humans to reduce their

population drastically for the benefit of the world as a whole (Fox 1995: 175-178). Leopold went on further to state that the environmental impact of any proposed project, whether it be personal, corporate, or a public undertaking should choose the course of action which will enhance the diversity, integrity, beauty and stability of the biotic community and the health and well being of the land organisms. Callicott, defender of Leopold's land ethic, states that respectable land use is applicable to us today and that use by humans of the environment should be subject to two ethical limitations. One is to promote biotic stability and health and the second is that trees cut down or animals slain for fur should be done thoughtfully, respectfully and humanely ensuring no waste or degrading (Callicott 1980: 489).

The individualistic approach of Paul Taylor differs from that of Leopold and puts the emphasis more on our obligations to have a clear moral obligation to wild animals and plants for their own sake and also that they have inherent and intrinsic worth in many facets within the biotic community. Paul Taylor believed that it might become necessary to sometimes act in a manner which might be harmful to some and bring good to others. But his underlying principle centred around the moral consideration which is applied to each entity. The good of each entity, whether human or non-human is worthy of being preserved or promoted for its own sake and not because of its instrumental value (Taylor 1995: 31).

Paul Taylor's "bio-centric outlook" on nature has four cornerstones. First, is the equal membership of all members within the earth's biotic community, whether human or non-human. The interdependence of each member for the healthy functioning of another follows, and the



rejection of the idea that humans are superior to other living organisms in the second and third instance and finally, that each living organism is a “teleological centre of life” and pursues its own goodness in a way unique to itself (Taylor 1995: 126).

One can see that Paul Taylor’s founding principle of equal moral consideration for all entities, whether human or non-human is based on individualistic considerations in contrast to the holistic positions of Leopold and Callicott and does not give more importance to one entity over the other.

Ramphal in his opening address to the IV World Congress on National Parks and Protected Areas stated that protected areas of natural environment cannot co-exist with communities which are hostile to them (Cohen 2001: 95). When placed in the proper context, nature reserves can be seen to be beneficial to all communities and can make a significant contribution to the well-being of the whole ‘community’. It was important he said that protected areas are socially responsible and just. Ramphal also stated that the relationship between people and land had too often been ignored and even destroyed by well intentioned but insensitive resource conservation. I view Ramphal’s position as sympathizing with Leopold’s “land ethic”, considering the world’s biotic community in a wholistic fashion and somehow moving towards the notion of establishing a harmonious and amicable relationship between man and the natural world, thus developing equal respect for each other in their co-existence.

But are the impacts of the emissions from the incinerator the only threat to the Park and its biodiversity? There are other factors that threaten the

bio-diversity on a daily basis. They might not threaten the reserve in the same manner but could be more devastating with long term and irreversible effects on the Park and its biodiversity. The Reserve, given its position in the Cape Floral Kingdom, is unique and therefore must guard against all forms of threat. Rapid urbanization and population growth, mainly in the form of tourist accommodation, will put pressure on the reserve. Alien plant invasion would be also a severe threat to the life cycles of the species. Inappropriate fire regimes and littering will impact on the biodiversity. Finally, rare plant poaching by organised groups will be detrimental to the sustainability of the Park and the bio-diversity of the forest.

The moral dilemma that confronts decisions-makers, especially when it has to do with impacts of development on the non-human world, is whether moral considerations can be extended to all living organisms not only humans.

The biotic community is a concept which takes into consideration all elements existing within the earth's biosphere. This would include soil, water, plants and animals and this seems to be an important consideration to be taken into account when making decisions about the proposed incinerator.

#### 4. Political Corruption and Conflict of Interest

Political corruption and conflict of interest is considered by most enlightened thinkers as a case of moral pollution (Gyekye 1997: 193). It involves the kind of dilemma that pervades the area of rulers and other public officials, who run affairs of a state or political community. It falls under the umbrella of political corruption and is an ever present



problem that appears to affect all forms of human society, rich or poor, developing or ancient, or traditional or modern, the running of whose affairs is entrusted to a specific group of people called public servants or officials (Gyekye 1997: 192-193). The degree of political corruption varies from society to society and manifests itself more often in some and less in others. It is common knowledge that the post colonial African countries are among the worst victims of political corruption. Political corruption is perhaps the most serious source of financial paralysis suffered by most developing countries. In most colonial Africa, it is perhaps the most common cause of military overthrow of civilian governments and has become one of the most serious diseases in government.

“Political corruption is the illegal, unethical and unauthorized exploitation of ones political and personal position for personal gain or advantage” (Gyekye 1997: 193). The use of the word political and political corruption is generally intended to mean public affairs; official goods, affairs, fortunes, agencies, resources, institutions of state which is a human community with organized public institutions (Gyekye 1997: 193).

Political corruption is therefore a act of corruption committed against state institutions by persons holding an official position, especially in a decision-making position for personal gain or profit. Therefore political corruption serves the personal ends of individuals who involve themselves in it.

Political corruption usually takes the form of and is associated with the taking of bribes, nepotism, kickbacks, favoritism and misuse of funds of

state for own personal enrichment. This can cover the fraudulent siphoning of state funds by heads of state for deposit in foreign banks, jobs for friends for financial return, employing family and relatives while rejecting adequately qualified candidates with better credentials, the police officer who abandons charges against a person for cash in return, the offering of bribes to magistrates and judges for preventing the course of justice and the official who, given his decision making position, approves a controversial project in return for financial gain. All these are forms of political corruption and involves the public official and the other beneficiary of the corrupt act.

The frequent occurrence of this phenomena does not only generate scandal and front page media coverage but also the ire and resentment of the wider public. This can generate high emotional and fierce political debates, especially in the case where communities are directly effected and moreover those who are previously disadvantaged and living in poverty.

Political corruption is often explained in terms of the nature of a political or social system, economic conditions and the inadequacies of legal and institutional frame work. In Herbert Werlin's view, "rising corruption is a fundamental political disorder" (Gyekye 1997: 193). James Scott sees political corruption "as a political event" (Gyekye 1997: 193). The central theme of his book is that "patterns of corruption can be related to the character of the political system and to the nature and rate of socio-economic change" (Gyekye 1997: 194). It can also be said that the manner in which a political system operates will give rise to political corruption. In the more enlightened countries, running for political office by some is directly dependent on contributions and



goodwill of individuals with some kind of understanding that some reciprocating benefits would ensue. This rewarding process will most likely involve the candidate in political corruption.

Weak leadership often gives rise to political corruption. Where a head of an institution is weak in wielding authority, his subordinates will be tempted by bribes and other forms of political corruption. Another reason might be that the leader has compromised his position by being involved in some kind of dishonesty. Often, leaders who are aware of impropriety of their subordinates, might hush issues to save embarrassment and in doing so give others in the officialdom the sense of comfort of resorting to such practices. Political corruption will thrive more in areas where public concern and commitment is weak and is constantly being thwarted by other non-public loyalties or obligations.

Political corruption is more prevalent in most African individualist societies than non-African individualist ones. This is because of the communal social structure prevalent in most African societies and as it most often happens individuals within this system who hold office gets pressure borne on them by other members to involve themselves in political corruption. This is because of the dual responsibility that he bears which seeks of him to be adequately personally financially strong. Secondly, the extended family system gives rise to patronization and he is expected, in a position of power to find jobs for family and friend, even if they do not have the credentials for the job.

It is traditional to hand out gifts to senior members of family or clan by members of a traditional community. This action can be construed as political corruption, although in some instances it can honestly take the

form of appreciation and love. Nevertheless, the traditional act of giving gifts to senior men and leaders can put the decision-maker in a compromising position, should the giver be wanton of a favour. The act of giving gifts to elders and statesmen in the traditional setting and the poor economic circumstances of a country can be construed as causal factors in the incidence of political corruption. Economic circumstances might lead to erosion in salaries and therefore result in serious difficulties in making ends meet and make ordinary life unbearable. The relative poverty of some nations causes the incidents of political corruption to be more prevalent and even less shameful. Political corruption may, at first glance be a phenomena that occurs at lower levels of officialdom, where salaries are low and making ends meet is difficult, especially in low-income communities where poverty is high. But an even more worrying factor is when political corruption involves the well off and wealthy. This can therefore be related to greed and the obsessive desire to continue an opulent life at the expense of the state, as his own lifestyle is unsupportable by his legitimate means.

The absence of an adequate and legal framework or controls might be one explanation for widespread incidence of political corruption. In addition to inadequate laws governing corrupt behaviour, lack of institutional checks, ineffective law enforcement agencies, lack of legal sanctions against culprits and a weak civil service, too afraid to remove corrupt officials are responsible.

Political scientists are of the opinion that political corruption cannot be linked to any specific culture and to characterize the phenomenon as such is inappropriate (Gyekye 1997: 201). Culture is a way of life of people and therefore it can be categorized as a public phenomenon.



Society participates openly and without reservation in public phenomena. In doing so, they involve themselves in the positive issues and meanings, as a cultural product has a positive value in the lives of people. Political corruption is not undertaken in the public domain and is therefore a clandestine operation. It is therefore incorrect to refer to a culture of political corruption for the reasons firstly, that it is not a positive cultural product and secondly, it is not a public event and thirdly, that political corruption is not a culturally organized norm or practice. Finally, it is not a culturally sanctioned practice and therefore is not specific to the cultures of certain people or race group and to imply such would border on incoherence. Alongside political corruption, one can easily categorize lies, theft, fraud and greed.

Those individuals and public officials who involve themselves in areas of political corruption, like thieves, are members of the human society. Society does not regard political corruption as a legitimate behavior by a public official and do not desire to insinuate it into the political culture, even if it was prevalent. Patrick Dobel summed up the concept of political corruption in moral terms, stating that it stems from a moral incapacity to make the desirable or rational and appropriate moral choice, by a situation in favour of the common welfare. In the case of officials, this would imply the welfare of the community they serve (Gyekye 1997: 201-203).

The Koukamma Municipality is an amalgam of smaller towns based in the Tsitsikamma. It has a primarily rural base of both citizens and staff. Prior to attaining Municipal status, the area fell under jurisdiction of the Transitional Rural Councils (TRC) which was overseen by the Regional Services Council. Under the new Municipal Structures Act, the

Demarcation Board gave authority to the area by the creation of the Koukamma Municipality, which had now municipal status over the whole area in question. The Koukamma Municipality is a level 4 Municipality, having 26 000 inhabitants and a poverty index of approximately 67%.

This status puts the institution into serious vulnerability from several aspects. Firstly, the Employment Equity Act gives preference to the appointment of staff and officials, some in crucial and strategic positions to black people or rather the previously disadvantaged individuals (PDI). This issue, if not managed rationally and sensibly could lead to all kinds of complex problems of incapacity and competence. This is more so when areas of high technical requirement is managed by people with inferior knowledge of the matter. The most worrying issue is that decisions sometimes made would have far-reaching impacts on the well-being of the inhabitants. Secondly, given that the status of the institution determines the remuneration of the staff and officials from the Mayor to all technical management and operational staff, the municipal employees would be remunerated on a much lower scale than say Grade 2 or Grade 3 municipal status, not taking into account the glaring disparity between Grade 4 and Grade 1. Therefore, employees of the Koukamma Municipality will find living an ordinary life much more taxing than their counterparts say in Humansdorp or Port Elizabeth. The hope of living a life style beyond their financial constraints is always a human factor to consider. Thirdly, the poverty index sits at 67%, unemployment at 75% and homelessness at a staggering 75%. These factors contribute to the non-payment of services which in some areas is non-existent. Some folks still use the culture of non-payment as excuses for non-payment of services, in



addition to the fact of being unemployed. The impacts on the Municipality is staggering as it depends on the service charges to pay salaries and overheads. There are instances where staff and Councillors have not received their monthly salary and allowances for several months.

Often appeals to the Provincial Government gives some relief, as even the Provincial Government has its own internal complications of getting to grips with issue of high priority. This uncertainty that pervades the employees is a fertile ground for employees to become creative about earning extra cash and given the treatment of the institution of them, some will find justification in enriching themselves through the Municipality. Other factors are the fact that senior staff, being mostly black have extended family systems which brings the burden of feeding many more mouths than just a few. The additional costs of living due to co-habiting in a larger house also becomes an issue which might add to their existing problems of living above the breadline. Being a close-knit community, jobs for friends and family, even though they lack credentials, would take place.

Given, therefore, the background of the Koukamma Municipality, its staff and political incumbent's background, a development of the magnitude of an incinerator will definitely be seen as a source of extra income from the project in whatever form. The appointment of consultants, the approval of processes and reports, the resolutions made by Council and other related financial decisions also has the possibility of being decided upon without objective evaluations, but on the basis of bribes and kick-backs. Therefore, it is imperative that the Municipality removes corrupt officials from the decision-making process and

constitutes the decision making panel free of corrupt officials and politicians.

Political corruption is a moral problem that pervades officialdom as well as the wider society. Society in general does not respond emotionally to the thief who tells the judge that he stole because of his economic position, but the moral posture and response of the general public to one who has embezzled the state coffers is volatile, especially if funds earmarked for the community were involved.

Its affiliate, which is that of conflict of interest is another moral dilemma of paralytic proportions facing all government and state institutions, but since it falls under the umbrella of Political Corruption, it will not be further discussed in this section.

## 5. Ecologically Sustainable Development

### 5.1. Introduction

The notion of ecologically sustainable development has been adopted by South Africa firstly, as a basic human right and secondly, as one of its major policy objectives. It is a commendable step and at first glance it conjures up all sorts of “good” things, especially with the use of words such as “sustainable” and “development”. The question that begs is whether South Africa, in adopting this very noble concept has given much thought at the actual practical application of the concept. The issue that we must be very mindful of is the fact that we are a developing country with specific focuses and priorities. One such priority is poverty alleviation, having our poverty index sitting at a high



of almost 67%. This means that 67% of the citizens of this country do not have a guaranteed meal each day.

In South Africa everyone has a right to an environment that is not harmful to their health and well-being and to have the environment protected for the benefit of present and future generations, through the passing and enforcement of certain legislative and other measures. Further, these laws have to be reasonable and should firstly, prevent pollution and other ecological degradation. Secondly, it should promote conservation and finally secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development (Hattingh and Attfield 2002: 65). In Article 24 of the South African Constitution, Act 108 of 1996 these issues are clearly stated.

South Africa's National Environmental Management Act (NEMA), (Act 107 of 1998) constitutes the cornerstone of this country's environmental law. In NEMA, sustainable development is defined as "development that meets the need of present generations, without compromising the ability of future generations to meet their needs". The supporting statement in the preamble of NEMA further describes sustainable development as "the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations". Many professionals in the field view ecologically sustainable development with cynicism and that one could not give the notion of ecologically sustainable development any substance, given that we are applying the concept to a developing country like South Africa,

where the notion of ecologically sustainable development might play second fiddle to burning issues of unemployment and poverty.

Further, given the huge polarization of related issues such as the values of social and economic development hitting heads and social justice, which in turn hits its head against environmental protection, appears to give no hope to finding a long term solution in the context of South Africa. The constant trade-offs between the three pillars of sustainability viz. environmental protection, economic and socio-cultural and intergenerational equity would be required in order that any practical implementation of sustainable development can be achieved, this being done on an explicit and effective give and take situation. Social scientists are of the opinion that South Africa does not have the capacity to effectively analyze these trade-offs, leaving the gap open for either arbitrary decisions or politically motivated decisions to take centre stage. This can only lead to what is termed “environmental disasters”. Even the justice system of the South Africa has numerous deficiencies in guiding the decision-making processes that could attain the objectives of sustainable development. There are therefore several issues at a broader level that require answers and that which pulls us into several moral and ethical dilemmas (Hattingh and Attfield 2002: 67).

The moral and ethical dilemma facing most decision-makers and implementation agencies attempting to apply the concept of ecologically sustainable development is the debate around relationships on a philosophical and ethical level. Underlying this debate is a dinosaur of a question that whether a country such as South Africa, given its recent history of injustices under apartheid and in addition given that the



global agenda of “development for social justice,” which is aimed at eradication of poverty, hunger and deprivation which is a stark reality, has done the right thing to have adopted ecological sustainability or even sustainable development as one of its key policy objectives for the future (Hattingh and Attfield 2002: 69).

How do the authorities, when deciding on the course of action to build the incineration plant weigh up as to what should be given more of a priority or less. In both cases more to humans (in terms of building the incineration and putting food in mouths) and less to nature (minimum pollution of the environment) and vice versa would be a moral challenge and dilemma.

## 5.2 The Green or Ecological Force

The notion of ecological sustainability clearly indicates a concept of restraint and caution, which means that thresholds are created, these thresholds being non-negotiable with the bottom line that no matter what impacts this threshold constraints have on human life, those impacts should not be taken into consideration. It portrays a concept of non-anthropocentrism in a narrow sense, in that it places greater emphasis on the protection of nature than the survival and well-being of humans. In fact it makes it impossible to attain the social and economic development that is so urgently required to break poverty cycles, hunger and deprivation.

Therefore, in the case of the Koukamma Municipality the question begs as to should the people of Stormsrivier's position be uplifted by development and employment, or the people starve because the

concern for nature takes priority. Or is there a wider interpretation possible of ecologically sustainable development that can overcome - or avoid - this dilemma?

### 5.3 Responsibilities Towards Future Generations.

The notion of ecological sustainability invokes in us a responsibility to safeguard the environment and its resources for the benefit of future generations. It further underlines that the environmental choices we make presently, can affect the ability of future generations to meet future needs. Constraints should therefore be put on the present generation in order that resource depletion is curtailed in order that it can be utilized later by the future generations. The question begs whether we will ever know what the needs of a future generation would be given that it lies sometimes in the future. In reality, any future generation is only guaranteed by the survival of the present generation, which if not being able to fulfill its basic current needs, might perish and then there will be no future. For instance, if in order to conserve the world's resources for the future generations to enjoy, the present generation starve to death, there will most definitely be no future. In another scenario, the present generation conserves the forests with the notion of safe guarding it for future generations and in so doing deprives itself of warmth and shelter against the freezing cold which finally makes them perish. The question begs whether our concerns are well placed or not. Having said this, it will be appropriate to therefore state that if the present generation did not survive, a large portion of the future generation will not come into existence at all (Hattingh and Attfield 2002: 81). Should the Koukamma Municipality only cater for



all the present and not think of the future generations? This brings about a further moral debate.

#### 5.4 Starvation or Nature

The burning question that begs is whether we can support the notion of ecologically sustainable development if that very notion curbs our actions and employs stringent constraints so that we cannot progress further in development or planning, resulting in the proliferation of poverty, hunger and deprivation, and even in death in some cases.

South Africa is besotted by high levels of unemployment, poverty and deprivation. Can a country with such a high poverty index consciously adopt such a concept as one of its policy formation structures? The dilemma that raises its head is whether enough thought had gone into the decision-making to ascertain whether the concept of ecologically sustainable development is firstly, internally coherent or not and whether it is compatible with social values such as social and economic development. In the context of the proposed site for the incinerator, the people see the natural source of food and environment as sustenance. To change this mindset will require a serious shift in moral thinking.

#### 5.5 The Concept of Sustainability

The concept of sustainability itself, purely by its interpretation, opens up a labyrinth of notions and understandings. When one speaks of sustainability it immediately conjures up a notion of lasting forever. Now, can anything last forever? The scientific fact is that the sun will eventually disintegrate and burn out and so with it all life on earth. This

mere fact narrows the interpretation down to perhaps time, but what are we talking about: 10 years, 20 years or 100 years (Hattingh and Attfield 2002: 73). Some people die quite young and others die quite a way up in their age. Can sustainability be measured over generations or limited to a single generation? The moral issues here is what are the needs of people and how long can they be sustained. Do we determine that a population at Stormsriver can only survive a single generation or two. Therefore, the decisions we make especially when it impacts on the lives of people, moreover if they are disadvantaged, has high moral and ethical connotations.

An industry may at a glance be highly sustainable and successful but if for some reason mainly by the actions of the said industry, another industry is directly affected, it is unsustainable as it has undermined another human endeavour. A successful fish processing plant which dumps its waste into the sea close to the lucrative line fishing spot and in so doing attracts sharks, which chases all the fish away, is unsustainable as its actions have made line fishing unsustainable. Its actions have undermined the line fishing business (Hattingh and Attfield 2002 : 73).

In the same vein, although an installation of a waste-reduction incinerator at Stormsriver may bring with it job creation, the eradication of landfill sites, the abolition of open-burning and waive the costly option of transporting the waste out of the area, the broader issues of the effects of the emissions of dioxins and furans on other business ventures and their sustainability needs serious moral and ethical considerations, and then the question will beg as to whether one entity should perish at the price of having another entity survive?



## CHAPTER IV

### STAKEHOLDERS AND THEIR VIEWPOINTS

#### 1. Introduction

The proposal to install a waste-reduction incinerator at Stormsriver is not a decision that can be solely made by the implementing authority. Where decisions that affect the biotic community as a whole, do not recognize the transparency that the process entails, it is doomed to failure and if not failure, would be faced with insurmountable obstacles from various sectors on an on-going basis. The whole issue of environmental ethics takes into account first and foremost, the relationships and especially the interaction between man and man, man and animals, man and the non-human world and vice-versa. The question is, as to what kind of ethics can there be between man and nature? Interdependence is an issue not understood by many and only becomes a reality when a forest burns down or drought shows its incredible power. Therefore, it becomes of paramount importance to be highly cognizant of the natural, physical and built environment in which humans exist firstly, with one another and also with other members of the biotic community.

The Constitution of South Africa stipulates that every citizen should have access to information when it affects his well-being or that of his kin. Further, that he should be informed and consulted with on all issues that affect his well-being. The Bill of Rights is clear in respect of the rights of people and obligations of people to people that it “enshrines the rights of all people in our country and affirms the

democratic values of human dignity, equality and freedom” and that “Everyone has inherent dignity and the right to have their dignity respected and protected”. In Chapter 2 of the Bill of Rights 16 (1) and (6) under Freedom of Expression, it is recognized that “everyone has the freedom to receive or impart information or ideas”.

Under Chapter 2 of the Bill of Rights, Section 24 it is stated that “everyone has the right:

- a) to an environment that is not harmful to their health or well-being;
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-
  - (i) prevent pollution and ecological degradation;
  - (ii) promote conservation; and
  - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.

The installation of an incinerator in Stormsriver will have long lasting effects on both the human and non-human worlds, some of which (effects) might be irreversible. It is therefore imperative, that all stakeholder concerns and values be investigated in order that a democratic process which falls in line with the Constitution of this democracy, and more especially the Bill of Rights, can be put into place.



## 2. Stakeholders

### 2.1 The Implementing Authority (Koukamma)

The Koukamma Municipality based at Kareedouw is the implementing authority. Due to the Demarcation Board's new boundaries for this Municipality, Koukamma is the name given to the grouping of various smaller Municipalities. This new overall Municipal Authority comprises the rural towns of Clarkeson, Woodlands, Eerste Rivier, Stormsrivier, Bloukrantz, Joubertina and Kareedouw, where it is based.

The socio-economic conditions in the Tsitsikamma, compounded by years of apartheid-based policies of relocation and expropriations and forced removals, has left the Koukamma Municipality with a massive responsibility of directing its resources towards economic upliftment, provision of housing, development of infrastructure, job creation and provision of social, educational and health facilities.

These past atrocities perpetrated on the people of the Tsitsikamma by the then apartheid Government has left these people with bitter memories in an area where they have lived for generations. Between 1971-1978 the then National Government forcibly removed the Mfengu tribe from Clarkeson in the Tsitsikamma. This was their ancestral home since the 1830s. Overnight, their shelters were uprooted, packed into military trucks and women and children were relocated to rural Keiskammahoek in the former homeland of Ciskei. Here, they came under the dictatorial rule of Lennox Sebe and many were jailed and killed, given their past brush with his military police and elite hit squads. In a historical

judgment in 1994 and due to various interventions by the African National Congress and Pan Africanist Congress, and amidst joy and jubilations the Mfengus returned to Clarkeson to freedom and peace but the daunting task of picking up the pieces was a new struggle.

In 1996, the Moravian Church founded a Trust and with the assistance of the Provincial Housing Board constructed approximately 200 homes for the destitute exiles. The Mfengus had finally returned to their ancestral land to continue their cultures and lives.

In other such cases, the Khoisans were relocated to the bushes of Coesa in the depths of the Tsitsikamma Forest, adjunct to their now new home of Stormsriver. Here they lived for many years lacking basic services like potable water and sanitation. Through various intervention processes by the ANC and the likes of Gill Marcus (MP for the area post the 1994 elections), the people of Coesa were granted the rightful ownership to land at Stormsriver and that which now has been developed into a residential community of low-income dwellings. This is the backdrop to the challenges that face an institution in charge of the welfare of its people. No doubt there will be a reluctance and a cautionary approach by the communities who will view everything with suspicion.

The culture of non-payment of rates and taxes, a habit of the resistance shown towards the apartheid rule, still exists. This culture has become the excuse for poor rates and tax collection. The concept was devolved in the old dispensation which saw the communities, especially black, without proper housing facilities and infrastructure refusing payment of taxes and rates, as they believed that given their appalling social and



economic conditions, payment of rates and taxes could not be justified. In addition, illiteracy is placed at 80%. In this respect the Koukamma is faced with a serious dilemma of firstly gaining trust and legitimacy and secondly, to provide a clear indication that the imbalances of the past will be rectified. Further, a serious look at development at a social and economic level will be required as a show of good faith to alleviate poverty. The Tsitsikamma area is regarded as a poverty pocket and unemployment is at an alarming 75%. Set against this background and challenges, the proposal to install a waste incinerator at Stormsriver by the Koukamma Municipality, will raise a series of questions, some on economic viability and others on the responsibilities and obligations of the implementing authority.

The Koukamma Municipality's attitude and view to the proposal to install an incinerator is based on several argumentations. The argumentation in a broad sense takes into account the present problems being encountered with landfill sites and illegal open-burnings, which results in various complex problems such as the health of the squatters at the dump sites, coupled with death and injury and its legal ramifications. In addition the proliferation of forest fires due to open-burning not only raises serious concerns related to the tourism, but also to the financial implications given that a Municipality is an institution with limited funding. The policing of these various existing waste disposal processes and the size of administration and personnel required, would again have cost and viability implications.

The Koukamma's argumentation in respect of eco-tourism is that international tourists, having emerged from countries where environmental awareness and environmental ethics is about 200 years

old, would be critical of practices that don't measure up to international standards.

Incineration has been a waste-reduction practice in most of the American and European Countries and international tourists would support the idea if they feel that their well-being is not being compromised. Since eco-tourism accounts for 80% percent of the Tsitsikamma's income, the Koukamma feels that serious consideration should be given to protect it at all costs. In addition, the poverty index is placed at about 67% and should eco-tourism and its related activities be compromised, the poverty index will escalate overnight as about 70% of the population of the Tsitsikamma are employed in the tourism and timber industries. In addition, small, medium and micro enterprises (SMMEs) operating within the tourism sector would close down, placing the economy of the Tsitsikamma in serious jeopardy. It therefore becomes an area of high concern to the Authorities.

The second line of argumentation of the Koukamma Municipality is that the existing methods of waste-reduction opens itself up to costly litigation which the Authorities cannot afford. The landfill sites are becoming unofficial squatter camps, where the unemployed and hungry scavenge for food and valuables. Given the high poverty index, the standard of waste disposed especially from households is devoid of valuables. The organic waste is highly toxic and is highly inconsumable. This has resulted in cases of extreme conditions of food poisoning and diseases being treated by the local clinics and mobile ones. In some cases death has resulted and the blame has been placed at the door of the Koukamma Municipality. The most vulnerable people to these effects are children who play in the landfill sites, looking for food.



Injury to inhabitants young and old in the landfill sites from sharp metals, broken glass and food tins is an everyday occurrence. The media has been constantly covering these issues. Danger to the Municipality's own staff who either police the site or the drivers are also an ever present problem. Given the secluded nature of the site, the hungry often attack the staff on site if access is prevented. Several cases of compensation to the local inhabitants and staff of the Koukamma has been recorded due to the above occurrence at the landfill sites. This has cost the Koukamma hundreds of thousands of rands in legal fees and settlements. In addition, the media has, as usual, sensationalized all these occurrences, sometimes on the front page. This has dented the image of the Koukamma as an Authority that is capable of taking care of its environmental issues. The concern of the Koukamma is the impact that this negative media reports can have on its prime source of income which is tourism.

The dangers of open-burning forms the third line of argumentation for the Koukamma. Open-burning is a banned practice in the Koukamma. To prevent home owners getting rid of garden waste by open-burning, the authorities have identified a separate landfill site at Kareedouw which only takes in garden waste. Most of the urban town folk are adhering to this banning and on a weekly basis take their garden waste to the dump at Kareedouw.

However, the rural dwellers, squatters and shack dwellers of the Tsitsikamma are lawless in their attitude. Open-burning continues unabated despite continuous warnings being issued. These people burn not only garden waste, but even household waste on their sites. That which are combustible will disintegrate, but several items such as

metals, hard plastics and some synthetic matter do not burn well under low heat. In addition old tyres are constantly burnt for wire retrieval and heat, as most areas do not enjoy the luxury of electricity. The Koukamma has tried to police these practices but most of these practices are done at night, especially in winter when the temperatures in the Tsitsikamma are really low.

The Koukamma's experiences in the after effects of these unlawful practices of open-burning is extensive. Open-burning has had serious consequences, both for the environment and people. Uncontrolled fires have burnt down several shacks and have caused serious harm to the old and the weak, some being burnt badly and others having died in fires. The harm to the environment, especially the forests of the Tsitsikamma have been irreversible. In December 2002, a fire managed to bring to the ground the whole of the Bloukrantz Cultural Village. After the fire, the Bloukrantz had not a single shrub standing. The many small businesses were razed to the ground. In other incidents like the shack fires of Woodlands, many residents have died and others were marred for life. Again, the cost of reparation and rehabilitation has been very costly and time-consuming. Therefore, the Koukamma's argument here again stems around the media coverage which slammed the authorities for allowing open-burning practices and the litigation and expenses that ensued.

The final line of argumentation of the Koukamma Municipality is that the consolidated costs, together with the loss of life and the cost of bad publicity through the press is an issue to be considered. It is felt that the installation of the waste-reduction incinerator at Stormsrivier will, if cheaper than all the other methods of waste-reduction, be a better



option. The argument takes into account the losses both of life and environment in the landfill option. The loss of life through contact with toxic waste and the loss to the environment in the contamination of the earth by landfill sites. It also again takes into account the loss of life and the destruction of community structures by open-burning. In addition, open fires spreading rapidly through the forests do irreversible damage to the environment. The costs of litigation in damages claim by both residents and National Parks Authorities and the negative media coverage are further factors to be calculated into the financial equation. The Koukamma feels that the installation of a waste-reduction incinerator capable of treating the Tsitsikamma waste would be an option to be investigated.

## 2.2. The Neighbouring Communities

The town of Stormsriver lies on the seaward side of the N2 highway to Cape Town. Its northern boundary is the Stormsriver, a picturesque deep gorge of ragged cliffs and steep climbs. On its southern boundary lies the Tsitsikamma National Forest. In the years building up to the 1994 elections, most black inhabitants were forced to relocate to Coesa, a secluded bushy area off the N2. This area was accessed by one very badly maintained gravel road which very often was not accessible by vehicle. There was no infrastructure and no running water. The inhabitants numbered almost 800 people.

In the interim, the town of Stormsriver was developed into a luxury white only resort with land prices being very high. This attracted the rich and elite who constructed beautiful holiday cottages here. Because of the abundance of timber, most of these holiday cottages were fine

products of timber mainly yellow wood and oak. The town of Stormsrivier then developed with a hotel, shops and certain tourism related offices. In conjunction with this development, the National Parks Board proclaimed the Tsitsikamma National Park in 1964 and the then government developed the Park into a tourist attraction with holiday accommodation. The relocated inhabitants from Coesa again returned to Stormsrivier, not as land owners but as servants and workers to the rich and affluent people of Stormsrivier and the Tsitsikamma National Park. After the elections of 1994 and the advent of democracy the ANC led Western District Council started a process to reclaim the land back for the original people of Stormsrivier. After many applications, representation and meetings with the then Minister of Land Affairs, Mr Derek Hanekom, the portion of land adjunct to the town was given to the Coesa people. But the poverty levels and high unemployment forced the development into a government funded low-income housing development. But the people were happy, that at least there was a roof over their heads and their elderly and children. In December 2001, 448 families were handed keys to their units. In 2002, the boundaries of the areas were finalized and the Koukamma Municipality was formed to look over the affairs of the Tsitsikamma.

There was extreme resistance to this low-income housing development by the Rate-Payer's Group. Reasons for this objection was that the property prices of the existing village would be lowered, now that it was sited adjunct to a low-cost development. Other concerns were high crime due to the high unemployment and vagrancy. However, this development has now become accepted as a given, as the Government's policy of land ownership is clear and read in conjunction with the Bill of Rights and especially the rights to freedom of expression and movement.



This debate died a natural death. Today, the inhabitants of the new housing development are making improvements to their homes and are living in harmony with their neighbours. However, there still exists a distinction between the so-called “Rate-Payers” who are mostly inhabitants from the old village and the local people who are the Community Based Partners (CBP).

### 2.3 The Community Based Partners (CBP)

The local black inhabitants of Stormsrivier who have just been given new homes see any development as a hope for poverty relief. The unemployment index is set at 70% at present. The announcement of the installation of an incinerator brings hope of employment in the pre-construction and post-construction stages for the people. Beyond this, very little consideration is given to issues broader than that of bread and butter. However, there were questions regarding broader issues but the focus will eventually turn to the employment of local people and alleviation of the cycle of poverty, that presently consumes them.

In addition, there is objection to the closure of the landfill sites by the squatter community who benefit from the process. Again, the argument is based around the basic issues of survival. The squatters and landfill site residents are threatened by the closure of the dump as it takes away the very source of food and other comforts. In the event of the landfill sites being closed down, the shackers will have to uproot their shacks and relocate to another venue close to another source of food and income. In addition, the squatters argue that the land and the chances of finding an abode elsewhere would be difficult for their children and families.

The banning of open-burning has not gone down well with the inhabitants. They are adamant that there is a lack of effort by the Koukamma Municipality to provide electricity and hot water. The winters are severe in the Tsitsikamma. It is therefore felt that the Koukamma allow the practice of open-burning to continue, given its primary function to provide heat and food to the inhabitants. The burning of tyres was also debated. Again the argument was that given the high unemployment and poverty, consideration should be given to allowing the inhabitants to continue retrieving wire for sale from tyres by open-burning.

The inhabitants are however looking at the issues at hand quite narrowly. Understandably so, as the illiteracy rate placed at 80 percent is a major factor to be taken into account. This is a community which has come through generations of neglect and abuse. Siblings and family friends, especially the elderly and children, have perished through poverty or sicknesses, unable to access proper care and medicine. What now subsumes their thinking is the daily food and survival for both their elderly and their children. This places them in a very vulnerable and fragile situation and their ignorance of the broader issues in no ways should be comprehended as acknowledgment and acceptance.

The Koukamma's idea of choosing Stormsriver as a site for its waste-reduction incinerator is based on economics, high unemployment of the area and poverty. It was sensible to site it in an area of high unemployment next to poverty pockets in order that some relief is given to the community.



## 2.4 The Concerned Rate-Payers Group

This group was primarily established to advance the ideology and interest of the white affluent class of people at Stormsriver. They were constituted of all the residents of the resort, white businesses and the opposition political party.

Their main objective is to resist anything that would threaten the status-quo at Stormsriver, which, before the establishment of the low-income township was an up-market white holiday destination for the rich and affluent class coming from all parts of the country. This group had a lobby group which continuously resisted any issue, either of a developmental or political nature that threatened their lifestyle or that of their siblings.

The Concerned Rate-Payers Group at Stormsriver, as stated before, is comprised of the residents of the old established white village of Stormsriver. Most of the residents are retired businessmen who have bought and built up-market houses here. Given the area's popularity as a tourist destination, most of these homes are turned into bed and breakfast accommodations when these folks go away on vacation. In addition, some have built extensive holiday accommodation for hire to tourists. The (CRG) Concerned Rate-Payers Group are concerned about two main issues. Firstly, there is the very lucrative tourist trade that the area generates and secondly, is the protection of the status-quo of the area so that devaluation of their property never happens. Out of these main concerns a number of issues have been raised.

The CRG welcomes the idea of the establishment of a waste-reduction incinerator at Stormsriver. This acceptance however, is conditional on several issues that they would like to see revisited. The fact that waste-reduction is going to move away from the landfill option and open-burning practices was welcomed immediately. The CRG stated that the practice of waste-reduction must be in line with international norms given that the tourism industry in the area had several American, European and Canadian visitors every year in whose countries the whole process of waste reduction was done at a very sophisticated level. If this was in line with the same thinking it would be a plus for tourism in the area.

They were also concerned about their own sustainability, as tourism was the key attraction of local and international visitors to the area and their own bed and breakfast enterprises would remain highly sought after and lucrative. Other issues that were argued and linked to their main concerns was the siting of the incinerator. The CRG questioned whether the proposed incinerator could be built elsewhere other than Stormsriver. The argumentation here was that the incinerator could be sited at Joubertina where an industrial zone had already been established. Nestlé's Chocolates had its Eastern Cape operations based in the area. They further felt that Stormsriver was the most sought after tourist destination in the Tsitsikamma and it would make more sense not to disturb this idea too much. There was also the question of safeguarding their own investments.

Further concerns centered around the influx of migrant workers and unemployed people to Stormsriver, especially during the construction stage. It is normal, they argued that any new development will attract



many of the unemployed on a daily basis in search of work, but this would give rise to vagrancy, theft and crime, they argue. The result would be that visitors to the area would be deterred, should a single case of crime or theft happen. There is no doubt that it will take the center stage of the news. The effect on tourism would be devastating for the area. The CRG's further concern revolved around rates and taxes and whether an increase in rates and taxes would be a way the Koukamma would fund the installation of the waste-reduction incinerator. It was further stated that the full costs of the installation, the funding source and whether it will affect their rate and taxes need clarification. In all aspects the proposal needs to be reviewed and the suggestion was that a commission be established to assess the proposals, the commission being members of all stakeholders.

## 2.5 Future Citizens

Our future generations are silent stakeholders whose interests are also be taken into consideration. This is more especially when it comes to safe-guarding resources in order that futurity does not suffer or starve to death. The whole concept of the consideration that should be given to future generations is a highly debatable topic among many social scientists who believe that although there might be a moral aspect in the concept of consideration given to future citizens, this concept is fraught with incoherence in respect of time-spans and what is actually to be conserved, given that future generations could mean in time frames either one generation two or ten and even go into futurity, with no limits. Secondly, it is argued that the needs of future generations might differ greatly from those needs that presently sustain our survival. An even bigger debate surrounds the dilemma of the argumentation that if

there is an obligation on our present generation to secure resources for the future generation and in the event the present people starve to death there would be no future generation (Hatting and Attfield 2002: 91).

On another level, the well-being of future generations is dependent on the well-being of the present generation. Especially in the case of health and poverty levels. It is a recorded fact that contagious and sometimes terminal diseases and illnesses are hereditary and is transferred from parents to children and to grandchildren, even to other people who come into contact with the affected party. There are cases of asthma, polio and diabetes that have affected generation after generation. Further, poverty levels also pervade generation to generation. The financial inability of a parent to educate his children adequately so that he secures a better life style for him and his future children, is a disease that is incidental and prevalent in societies where poverty cycles cannot be broken through very high unemployment indices.

The ill-effects and impacts of emissions, especially dioxins and furans, may result in contagious diseases such as Tuberculosis (TB) and Asthma and could be inherited by future generations and eventually result in an epidemic of uncontrolled proportions and as a result create an unhealthy society in the future.

In addition, the management of solid waste disposal either by land-fills or open burning and incineration will impact on the environment and the Koukamma Municipality needs to ensure that natural resource depletion due to destruction of flora by ground water contamination, emissions and toxic waste landfills is guarded, as in doing so the Koukamma Municipality secures the benefits that is derived from the



natural environment, whether physical or psychological, for the future generations, not just the present ones alone.

The depletion of natural resources by whatever process, as is the case at hand, dealing with pollution especially, will have long term and everlasting impacts. Therefore, resource conservation and development, although anthropocentric in its character is an important and essential component for the sustainability of man in general. Wasting resources in any way is considered sinful. The American Environmentalist Gifford Pinchot has been outspoken in respect of natural resource conservation and supports non-wastage, rational planning and development of resources for maximum sustainable yield and conserving it for future generations. Herein lies the moral consideration.

### 3. The Political Parties

#### 3.1 Introduction

Prior to 1994, the Tsitsikamma and all the areas under its jurisdiction came under the authority of various Rural Councils. These Rural Councils (TRCs) fell under the direct management of the Regional Services Council, the former Western District Council. These structures were created by the former Apartheid government who saw it necessary to monitor and contain the black people to areas of a rural nature where the only form of employment would be that which was offered by the white farming community.

Land ownership was restricted totally to white people, which has resulted in the current situation of all land in the Tsitsikamma being vested in white hands, especially lucrative cattle grazing and poultry sectors. Very little was done for the local people in terms of housing, education and health facilities. There were those that turned to the natural environment for food and shelter. The farmers were proponents of the then National Party and any reaction from the ANC supporters in the communities was quelled with deadly force. History is slowly uncovering unthinkable atrocities perpetrated on the natural inhabitants of the area, the Khoisans. Khoisan is the name by which the lighter skinned indigeous people of Southern Africa, the Khoi (Hottentots) and the San (Bushman) are known. Of recent mass graves of Khoisan people dating back to the early 17<sup>th</sup> century have been uncovered by archeologists in the Gamtoos Valley. Markings on their skulls show that they were shot at close range in almost execution style. Investigations on the issue has revealed startling cases of human abuse and atrocities by the white inhabitants of the Tsitsikamma. It is recorded during the early 17<sup>th</sup> century that the white residents would arrange hunting expeditions into the bushes and caves to shoot down Khoisans.

Post the 1994 elections, the flavour of the Transitional Local Authorities changed. Having now being given the vote, the local black people had majority representation on their Councils (TRCs). The African National Congress (ANC) to whom nearly all black people had membership, took power. Through this vehicle, the leaders, aspiring young ANC followers, made consistent and urgent demands on the authorities in various areas of deficiency. Housing was put on the priority list. Health and educational facilities were requested for each of the six deprived



areas, ranging from Clarkson in the North to Bloukrantz in the South. Change came to the area on a fast and furious basis. Numerous housing developments, crechés, churches and schools were being constructed. Short-term employment brought food and clothes to the people of the Tsitsikamma and through this the ANC became a powerful force in the Tsitsikamma having the full might of the local people behind it.

The old guard of the National Party had collapsed and there emerged a new order, the Democratic Alliance (DA), which was an amalgam of the old Democratic Party and the National Party. The catch twenty-two for the formerly National Party white inhabitants was that there was no political home other than the DA, as going to the folds of the ANC would take historical cultural change and most stalwarts were not prepared to change.

The threat of the “swart gevaar” was a mindset not easily dismissed. Therefore, there emerged two political forces in the Tsitsikamma. Firstly, there was the ANC majority party which, through democratic processes controlled all local government institutions and the DA, which looked after the interest of the majority of whites in the Tsitsikamma, toeing the line of the opposition party in the Chambers of Local Councils.

### 3.2 The African National Congress (ANC)

The ANC has committed itself to reconstruction and development and is guided by the Freedom Charter. The reconstruction and development programme (RDP) was a mechanism to reinforce the disparities between rich and poor. The ANC led government is therefore seeking ways and

means to uplift the poor and have-nots, to a level where the playing field is equal with those that were advantaged by the past system. Apartheid is no longer an issue although racism still pervades and the ANC is now targeting a different kind of struggle and that is poverty. The achievement of the ANC led local government institutions is highly commendable as the homeless have now homes, children are attending schools in proper buildings, health facilities are being improved on an ongoing basis and social facilities such as halls, recreation areas and playgrounds are being constructed in strategic areas of the Tsitsikamma.

However, the ugly head of unemployment, the main proponent of poverty is an ever-looming threat to the campaign and programme of the ANC. It does realize that as soon as the novelty of a house and other comforts sets in, hunger will take priority by the citizens and put pressure on the ANC to perform in the area of job creation and breaking of poverty cycles. The ANC, therefore, is quick to embrace any initiative that will satisfy its objectives and keep its supporters happy. They want to be seen as an organization that is committed and continuously making efforts to alleviate their supporters' grievances. Therefore, the announcement of a waste-reduction incinerator being implemented at Stormsrivier is highly welcomed. It is seen as a project which will not only bring job opportunities to the Stormsrivier area but also bring home political points and thereby keep its support base intact. In addition, the ANC is also quite sincerely concerned about the problems and dangers of the landfill site and open-burning, which has not only had devastating ill-effects on the citizens, but also on the natural environment. In this instance, the death of people due to accidents and contaminated food in the rubbish dumps and by fires is taken into account. Finally, the effect of open-burning which generates most of



the forest fires which destroys a great deal of flora and fauna of the area is an additional concern. The ANC led government has therefore placed no objection to the proposal and pledged its full support and lobby behind the venture.

### 3.3 The Democratic Alliance (DA)

The Democratic Alliance (DA) holds the position of the official opposition in the Koukamma Municipality having 3 seats to the ANC's 5 seats. The DA's support base in the Tsitsikamma are mostly the white land owners and farmers, who fear that the threat of losing their assets to an ANC-led government is an ever present danger. They see the DA as their mouth piece to safeguard their assets and rights. As land restitution is high on the priority list of the ANC, the DA having sensed this issue, has waged a continuous struggle on behalf of the land owners, fearing that land will be wrenched away from the white land lords. The DA might be faced with a dilemma and will lose its support base if this ever happens.

The land in question and on which the waste-reduction incinerator is proposed is a site ear-marked for a high school. Should the proposal be given the go-ahead, the school might have to be relocated to another area some distance from Stormsrivier. The DA has vehemently objected to this issue, having the concerns of their constituency in Stormsrivier in mind. The residents (DA Constituency) feel that the incinerator should be relocated and not the school. The idea of the installation of a waste-reduction incinerator is however welcomed, as it will bring relief in so far as the problems associated with landfill sites and open-burning is concerned. Finally, the DA's main area of concern centres around

funding and cost of the installation. The DA is of the opinion that the money could be put to greater benefit and the options of constructing the school and creating an industrial hive and a job creation initiative has been mooted. As a note of concern, the reader must be wary of the various hidden agendas of the political parties.

In the case of the DA, it will have to object to the proposal, even if the pros outweigh the cons, as a political point will be made, however, highlighting more the cons than the pros because of the mere fact that it is an ANC driven initiative.

#### 4. Local Businesses

##### 4.1 Introduction

It is quite an interesting observation to note that primarily all local businesses would not be in existence if the Tsitsikamma's natural environment was non-existent. Most notable businesses are either forestry related or tourist related. Nestlé's Chocolates based in Joubertina is so situated because of the milk production in the area, which is the prime ingredient in chocolate making. Boskor, which is one of the largest construction timber producers in the Eastern Cape depends entirely on the forests for its survival. All local businesses, from the lodges to the adventure related business are tourist orientated which is so because of the Tsitsikamma's natural environment that has managed to hold its ground, providing a continuous volume of natural resources. The question that begs is whether the Tsitsikamma can be termed an ecologically sustainable development node? We will touch on this issue later in the paper.



The Tsitsikamma attracts almost 10 000 local and international visitors per year, especially in the summer months. But businesses state that they are kept busy throughout the year. With good standard access roads, a reasonable standard of infrastructure, adequate accommodation and related facilities, the Tsitsikamma is a sought after destination, especially by international tourists. The various business thus hold the natural setting sacred to their business, as without it there would be nothing. It is therefore understandable that a proposal to install a waste-incinerator at Stormsriver, will require involvement or comment as both negative and positive impacts will be of interest to the local businesses.

#### 4.2 Stormsriver Adventures

The Stormsriver Adventures is a professional adventure and activity company based in the heart of the Tsitsikamma Forest, at Stormsriver. The company is tourist orientated especially catering for tourists from overseas and undertakes several sought after activities, such as hiking trails, tubing, both white and black water, cycling, game sighting and bird watching. It depends directly on the natural environment for its survival and viability. This company has brought several benefits to the local community and environment since its establishment in 1970 and has a 10 point commitment plan for the area. It is totally sensitive to the environment and conservation and is careful about the use of natural resources in its adventure products. There is a commitment to the involvement of local products and people. It has a commitment to uplift the community and is one of the serious job creators in the area, employing about 50 local people. The creation of SMMEs (small medium and micro enterprises) and joint ventures is high on its priority

lists. Various training and empowerment programmes are under way in respect of eco-tourism related activities. Stormsriver adventures works closely with the South African National Parks, Department of Water Affairs and Forestry South African Forestry Company Limited (SAFCOL) and other parties committed to conservation. The company has a underlying and key ethos of “transition, upliftment and empowerment”. Stormsriver Adventures’ Mission Statement further entrenches its commitment and dedication and reads:

“Indigenous Forest Management is the sustainable management of the indigenous forest for biodiversity, conservation and the economic, social and spiritual upliftment of South Africa’s people, with a special emphasis on poor rural communities”.

Waste management in the area has always been a point of concern for the company. The unsightly landfill sites and the after effects and products of open-burning has raised various questions of the Authorities. Waste is often dumped on sides of hiking trails and this “first impression” to tourists is considered harmful to their business operation by Stormsriver Adventures. Their commitment to community based programmes in education and health which sees the effects of exposure to harmful toxins to children in landfill sites and the severe burns to adults and children through open-burning, has prompted the company to become vocal both in community meetings and the press about the issue. Therefore the company welcomes the proposal to implement a waste-reduction incinerator, given that at least 60% of their business is from overseas tourists who would like to see waste management moving into a different level in South Africa. Incineration has been an established practice of waste-reduction in most European



countries. The ill-effects of landfill sites and open-burning further reinforces their support for the proposal. In addition, the fact that there is an opportunity for people to be employed is welcomed by the company. However, having stated all this, the company is of the opinion that the siting of the incinerator is wrong and has pledged its support for its implementation only if it is relocated to a site away from its area of operation. It is fairly knowledgeable with the fact that emissions of a noxious kind could be produced and that the effect on their business is of concern.

#### 4.3 Face Adrenalin Sport

The Bloukrantz Bridge situated at the southern most tip of the Eastern Cape is the third highest bridge in the world. Situated on this bridge is a company called Face Adrenalin Sport (FAS) which manages the bungi jumping from this bridge. The company was started in 1997 by a New Zealander with South African partners. Today, the company is renowned for being the highest commercial bungi jumping business in the world and is listed in the 2002 Guinness Book of records. Other such businesses are operated at the Gouritz River in Mossel Bay, which commenced in 1989 and one at Victoria Falls, that which started in 1993.

The company employs about 36 local people at all levels. Some are employed as secretarial staff whilst others are trained in more technical facets of bungi jumping. Most of the local people employed are breadwinners in their respective families. All staff are full time and permanent, which shows a high level of commitment to the lowering of poverty. The Tsitsikamma Forest Trust (TFT), which is a Section 21

company is its landlord. Apart from the monthly rental FAS has also committed itself to payment of a percentage of their turnover to the TFT. This money is earmarked for development of SMMEs by the trust in forestry ventures such as tree planting and water conservation.

About 10 000 visitors jump the bridge every year, with a further 8 000 as just sight seers who patronize other facilities such as the restaurants or go on hiking trails. It is therefore a serious stakeholder in the decision-making process.

The company is not the largest producer of waste in the area and in fact probably the smallest. But the interesting factor is that the concern shown is not from an individualistic perspective but one from a holistic position. Overall concern for the welfare of the Tsitsikamma's eco-system is obvious and although they do not have a detailed scientific understanding of the positive and negative impacts of an incinerator on the eco-system, the attitude shown is of finding a balance. Their argument in support of the incinerator is two-fold and basically it is one of job creation and the other of poverty alleviation. They are aware that the emissions from the incinerator will in some ways be harmful and their position is that the Koukamma should try and minimize the impacts on the environment, so that people are employed and poverty cycles are broken. It is also a vision to see a balanced approach working for both the people of the Tsitsikamma and the eco-system as a whole. Concern has also been shown in respect of the Koukamma's logic of the siting of the incinerator and questions emerge as to whether this was the best choice. In the final analysis, FAS would like to see tourism flourish, the poverty levels to drop, people being employed and bungi jumping becoming more popular.



#### 4.4 The Tsitsikamma Forest Trust

The word “Tsitsikamma” originates from the Khoi-Khoi language used by the original Ingwa Tribe that inhabited the area some 1700 years ago. It means a “place of many sparkling and abundant water.” The area in discussion is located in the Southern Region of the Eastern Cape on the N2 National arterial road.

This historical notion has been captured into the name of the Tsitsikamma Forest Trust which has its centre of operation historically located in the area once inhabited by the Khois and the Sans. The Trust was established and registered as legal body in 1995. It is made up of local community members, with an objective of establishing community tourism projects on the Bloukrantz River and Bridge, which forms the boundary between the Eastern Cape and Western Cape Provinces.

The 29 hectares of land presently owned by the communities used to belong to the former Roads Department and after laying in the hands of the Public Works Department for a period of 5 years or more, it was finally transferred to the Trust in 1995.

The mission statement of the Trust is four-fold and focuses on firstly, the upliftment of the standards of the unemployed through the creation of employment opportunities. Secondly, it targets the initiation of community-based eco-tourism projects. In addition, it is committed to the enhancement of and the development of tourism related skills with the local Khoisan communities. Finally, the Trust is concerned about the biodiversity of the area and in this vein is committed to enhancing the

natural beauty and landscape of the area. The Trust has undertaken three major job creation projects over the past 5 years. These range from the skills development programmes in weaving, crafts and forestry, to the physical construction of holiday accommodation. Of recent, the Trust has successfully completed a settlement of Khoi huts as tourist accommodation. The settlement is traditionally a set of Khoi huts with the characteristics of a traditional Khoi settlement, with outside cooking spaces and open-plan dining. It has become one of the very sought after tourist destination points in the Tsitsikamma. Apart from the ongoing skills development programmes and the employment opportunities created in tourism-related initiatives, the Trust employs on a permanent basis 26 full time and permanent staff, making it one of the more serious employment agencies in the Tsitsikamma.

The installation of a waste-reduction incinerator at Stormsrivier has been met with a positive attitude but with some reservations and queries. The Trust sees this development as a much needed employment provider for the many unemployed people of the Tsitsikamma.

Apart from the short term employment provided during pre-construction, the operation of the incinerator will provide about 50 permanent and stable jobs. In addition, the Trust sees the multiplier effects of such a project giving rise to other smaller business operations such as transportation and recycling. It is of the opinion that landfill sites and open-burning should be constrained or even abolished, given its many bad and long term side effects. It was the fires of 1999 that burnt down a whole hive of small businesses at a loss of 2 million Rands to the Trust. This is still very vivid to the Trust and its members. The Tsitsikamma Forest Trust therefore sees the installation of an



incinerator as a positive product for the Tsitsikamma, but is firstly unsure of its siting which is adjunct to a low-cost housing development and secondly, would like to be consulted further about the details of the impacts of the emissions of the incinerator both on the inhabitants and the natural environment.

#### 4.5 The Media

It is a known fact that the media's involvement in this controversy is mainly for headlines and front page news. The media solicits vigorously those parties and stakeholders who might turn the matter under debate into a controversial issue. In the final analysis, the intention of the media is to sell newspapers. Whether this quest is to the detriment of the proposal at hand or the general populace is often of no consequence to the media. It is known fact that proposals of this nature, i.e. the installation of a waste-reduction incinerator at Stormsriver will directly affect the poor and disadvantaged given their proximity to the project. But because of their financial position it would be impossible for interaction with the media as opposed to the more affluent people who object for other reasons than that which might be legitimate. The media is a glutton for controversial news items and often will twist issues to suit sensational reporting. It is therefore with certain scepticism that the comments of the media should be viewed.

On the other hand, the media has been very objective at times when it reports on and brings certain controversial decisions on environment to the notice of the public. What jumps to mind as an immediate issue is the recent controversy (in 2003 and 2003) surrounding the new Roodefontein golf estate at Plettenberg Bay. This seems a clear case of

political corruption which had detrimental effects on the public trust in local and provincial Authorities.

In addition, the local media and their general weekly column on environmental issues is quite informative and the only piece of reporting on environmental issues prevalent in the Eastern Cape. The media however, had no real position of its own on the installation of the incinerator at Stormsriver. They report on responses often highlighting those that are controversial. Therefore, as a stakeholder, one can conclude that if there is one stakeholder who adds no value to the process but does confuse and bring about a serious process of conflict, is the media. After all, it is those issues (issues of conflict) that make front page news and of course sells newspapers.

#### 4.6 The Consultants

Amongst the planning team for the concept of installing a waste-reduction incinerator at Stormsriver, is one key consultant who is the environmental scientist tasked with the job of ascertaining the viability and justification in such an installation. The consultant would have to be appropriately qualified to undertake the task of evaluating the possibility or in another scenario the non-possibility of installing such a incinerator at Stormsriver.

The consultant's brief is threefold. The first step is to undertake a scoping report which gets submitted to the Department of Environmental Affairs and Tourism (DEAT) for evaluation. Basing the assessment on certain criteria, DEAT could approve or request a full Environmental Impact Assessment to be made. Should DEAT approve



the scoping as sufficient to make a positive decision, the consultant's brief stops.

But in the case of the DEAT not being satisfied with the detail and contents of the scoping report the brief of the consultant is then extended. At the approval stage of an EIA, the consultant may still be kept on the project for overseeing the implementation and filing the necessary reports. With due respect to all environmental scientist for whom there is the highest respect, the comment that given the processes and requirements, the environmental scientist may have a vested interest in prolonging the evaluation. In doing so he might be looking after his own interest rather than that of the client. It is therefore not a dismissible fact that given the vested interest in the commissions, environmental scientists might not be entirely candid and open about their initial investigation and evaluations always making way for further work and investigations. Therefore, the subjectivity and objectivity of these scientists is an issue which cannot be dismissed as chance. It is with this dilemma in mind that one can conclude that the individual position of the respective environmental scientists is very difficult to ascertain at the outset.

## 5. Government Institutions

### 5.1 Stormsrivier Primary School

The school is based in Stormsrivier but there are no formal school buildings or classrooms. By an initiative driven by the senior politicians of the area, three housing units in the new low-cost housing development have been handed over to the School Governing Body until

such time that the Department of Education and Training (DEAT) makes funds available in order that classrooms could be constructed. The conditions are unacceptable as a contingent of 60 pupils are cramped into units of 40 square metres units, with inadequate toilet and washing facilities.

The buildings are low-income units with inadequate insulation and damp proof protections. The floors are concrete and the cold winters take their toll on the pupils.

The proposal to install an incinerator at Stormsriver has been met with approval by the institution, given the impacts that landfill sites and open-burning has had on children, some of whom are enrolled at the school. Also, the hope of employment is welcomed by the school as most children cannot afford to pay school fees coming from backgrounds where both parents are unemployed.

But the objection by the school is based on the fact that the site earmarked for the installation of the incinerator is a site most appropriate to develop a proper school for the children of Tsitsikamma. Therefore, the objection to the proposal is targeted mainly at location, whilst the positive aspects of jobs creation and safety of the community is welcomed.

## 5.2 The Local Tourism Forum

The Local Tourism Forum (LTF) is a voluntary lobby group comprising local businessmen and all interested parties who are committed to safeguarding the bio-diversity of the Tsitsikamma. This group has strong



ties with several Government and environmental bodies such as the Tsitsikamma Conservation Forum (TCF). It is therefore a strong voice in determining environmental decisions for the area. Established in 1996 with just four members, it has grown to a forty member forum. The members offer their services on a voluntary basis and the TLF has been instrumental in advising the housing department of Government, in several projects spread over the Tsitsikamma including all developments targeted at the Tsitsikamma.

Waste management has been on the agenda of the TLF since inception and several representations were made to the Department of Environmental Affairs and Tourism to investigate alternative waste-reduction methods other than land fill sites and open-burning. The TLF is well aware of the adverse impacts on both man and nature emanating from the practices of land-fill sites and open-burning. The current open-burning site is still being used although there are legislation restricting such practice. In November 2000, the TLF made a clear appeal to the Koukamma Municipality to investigate the possibilities of installing a waste-reduction incinerator in the Tsitsikamma and the notion of now moving with this idea could well have been instigated by the TLF.

The TLF is however ignorant of the operational details of an incinerator, as well as its impact on the environment. In this respect it has requested a full consultative and participatory process to precede any development plans. However, it is aware of the fact that an incinerator would rid the area of the hazards of land-fill and open-burning sites. In addition, the hope of providing employment to the local people is a much supported idea. The development of a waste-reduction incinerator is seen as a first

world concept which would appeal to the international tourist. Having stated all this, the TLF is uneasy with the location of the project and recommends that it be sighted at the old open-burning site on the opposite side of the N2 freeway in the Stormsriver area. This notion, however, brings with it several logistical problems.

The site proposed by the TLF is far divorced from any infrastructure and to afford electricity and suitable roads to the site will be costly. An estimate of the costs falls roughly in the R6 million arena and this might be a financial dilemma for the restricted finances of the Koukamma Municipality. In addition, the cost of installing a waste-reduction incinerator of the size capable of treating the bulk of the Tsitsikamma's waste will cost the institution about a further R10 million.

The TLF's attitude to the cost of the project is that compared to the fact that human life and nature would be safeguarded, the costs are incidental and could be compared to the long term benefit to man and nature. Finally, the TLF would like to have the piece of mind that the Koukamma Municipality will comply with all the necessary requirements as set down by National Environmental Management Act and the Department of Environmental Affairs and Tourism.

### 5.3 The South African National Parks Board

The Tsitsikamma National Park was established in 1964 after an appeal was lodged with the National Government for the establishment of marine parks and reserves.



This was primarily formed to co-ordinate the management of the Tsitsikamma National Forest (TNF) and the area surrounding the Forest Reserve. The Cape Floral Kingdom is the world's smallest and richest kingdom and is regarded as the one of the world's "hot spots", that is an area of sensitive conservation and biodiversity value. It includes the world's largest concentration of endemic, endangered and threatened plant species (Cowling 1985: 4). It is thus a possible candidate to be proclaimed as a World Heritage Site. The Tsitsikamma National Park has therefore become the custodian and monitors and polices all impacts on the Forest Reserve from any source whilst keeping within the guidelines of the National Environment Management Act (NEMA). It is against this background that the Tsitsikamma National Park has made certain clear recommendations in respect of the proposal to install a waste-reduction incinerator at Stormsrivier. The TNP has continuously lobbied against the practice of landfill sites as the contamination of ground water is highly possible by overflows and underground aquifer springs. The impact that this contamination will have on the birdlife, fish and animal life would be disastrous. In addition, it has never endorsed open-burning as a practice as this has caused great devastation to the biosphere, sometimes eradicating and destroying rare species of plant and animal life. The impact that these issues have had on the tourism potential of the Park is also of grave concern to the management of the Park.

However, the notion of a waste-reduction incinerator at Stormsrivier, although welcomed, raises other issues of negative effects of the emissions on the flora and fauna. It is aware that emissions out of an incinerator can produce dioxins and furans and can have some negative impact on the flora and fauna. Therefore, whilst the initiative is

accepted in principle, the Eastern Cape National Parks Board (ECNPB) requires the comparative explanation as to whether the incinerator or the other traditional practices would cause lesser impact on the environment or more.

#### 5.4 The Department of Environmental Affairs and Tourism

The Constitution has created some areas of executive and administrative competence, which are often shared by more than one level of government and often is exclusive to one level in isolated cases.

The Constitution empowers and gives jurisdiction and legislative powers on any matter localized to its jurisdiction as listed in schedules 4 and 5 with the functional areas of concurrent national and provincial legislature competence, including agriculture, environment and nature conservation (excluding National Parks, national botanical gardens and marine resources and soil conservation). Air pollution is specified in Schedule 4 as a competence of local government and therefore will be seeking that the Koukamma Municipality complies with its various stipulations, more especially as far as pollution issues are concerned.

The DEAT has made provision for two Acts in particular, one to provide for the effective protection of the environment and controlled utilization called the Environment Conservation Act, Act 75 of 1989. This Act is administered by both the National Department of Environmental Affairs and Tourism and the Department of Water Affairs and Forestry (DWAF).

Many of its competences have been delegated and assigned to the provincial authority to be administered. An environmental policy was



declared by the Minister of Environmental Affairs and Tourism in 1994 under Section 2 (1) of the Environment Conservation Act. This policy stipulates a number of environmental principles. The Minister also promulgated the Environmental Impact Assessment (EIA) Regulations under Section 21 of the Environment Conservation Act. The underlying principle is a requirement that a developer prepare an environmental management plan for any development that has been approved. The provision of the EIA regulations empower the relevant authority to include in its record of decision the specific conditions of its approval including measures to mitigate control and manage any predicted environmental impact.

The DEAT has also promulgated the National Environmental Management Act (NEMA), Act 107 of 1998. Chapter one of the Act lists all the principles that may affect the actions of all organs of state that may significantly affect the environment. The underlying principles clears up the State's responsibility to respect, promote, protect and fulfill sound environmental policies and rights as indicated in Chapter 2 of the Constitution.

In particular the State's obligation to cater for the basic needs and protection of the disadvantaged people of this country is entrenched. The principles serve as a general framework and guide which within environmental management and implementation plans must be formulated and by reference to which organs of state must exercise any function when taking any decision in terms of the Act or any provision concerning the safety of the environment.

The DEAT's position on the installation of a waste-incinerator at Stormsriver is referred to the National Environmental Management Act, 107 of 1998 and the Environment Conservation Act, Act 73 of 1989. This is however, a worrying factor, as the DEAT is bent on working within the narrower technical management approach to the problem and will not venture further than this. Thus, DEAT guidelines do not question the ethics and morals of any effects emanating from the application of its guideline policy as long as the basic minimum requirements of the policy is adhered to.

But serious lobbying by ethicists and lobby groups can force DEAT to look beyond this narrow approach.



## CHAPTER V

### EXPLORING THE ALTERNATIVES

#### 1. Landfill Practice

The landfill practice is the most common process used to treat waste generated by households and other producers. At present it is considered to be the cheapest option available to institutions who have access to vast tracts of land. Most Municipal structures therefore have landfill sites spread over its area of jurisdiction in order that the logistics of transportation and centralization for their citizens and themselves is not a huge financial burden.

Generally speaking, the way the process works is firstly, the identification of a site is made with the help of the respective consultants, amongst whom the expertise of a geologist must be available. An area which has a significant amount of clay-underlying the required depth is ideal. This is an ideal factor as the drainage of gas and toxic fluids can be contained. The site has to conform to the requirements of the health authorities and should not be less than 800 metres from the nearest residential component. Access to the site and also adequate security in the form of on site policing and fencing is also investigated.

The site is then divided into cells of a size not larger than 500 cubic metres. Waste is then dumped into the cells and is given a blinding layer on a daily basis over whatever has been dumped of about 200 mm of

sandy soil. Every six month a 600 mm of sand layer is levelled over the site. Finally, when the site has reached its maximum capacity a 600 mm layer of sandy soil is spread over the site with a further layer of clay of about 500 mm to cap the escape of methane and other toxic gases. At this point adequate gas venting systems need to be installed as a requirement in terms of ISO 14001. In addition a gas drainage layer needs to be installed for the drainage of gas build up and toxic liquids so that water aquifers are not disturbed or contaminated.

The rehabilitated site can then be turned into a green lung or used for recreational purposes. The gas venting system could be fired to get rid of the methane emissions thereby reducing the effects of the gases on the environment.

The question whether this practice is an option for the Koukamma needs further discussion. The site that is being presently used by the Koukamma Municipality is located close to the National Park and the low-cost housing development of Stormsriver. Access to the site is easy, thereby resulting in local inhabitants invading the site for food and valuables on a daily basis. The site had attracted a new community of bush dwellers who rely on the dump for their livelihood and shelter requirements. There are several incidents of injury to children and adults and the frequent occurrences of food poisoning and other ailments resulting from contact with the waste matter. The legal ramifications of claims against the Koukamma Municipality, however, are an ever looming threat.

The rehabilitation of landfill sites is an expensive operation as several requirements in terms of ISO 14001 are quite stringent and non-



negotiable. The double layer of capping, the gas venting system and the gas drainage systems will be out of the affordability level of the Koukamma Municipality. Therefore, in the short term, the landfill option could be a solution but on a long-term basis, given the expense and impacts it may not be in the best interest of the Koukamma to carry on this practice.

## 2. Open Burning

Open burning has been the general practice of treating waste in the past. The practice has been banned in terms of the enforcement of ISO 14001 which prohibits the burning of any waste, whether household or garden refuse. In this vein the Koukamma Municipality has provided a waste landfill site at Stormsriver and at Clarkson in the Tsitsikamma. It has further provided a garden refuse dump at Kareedouw in the Tsitsikamma. Although the enforcement of preventing the practice of open-burning can be policed in the urban areas of the Tsitsikamma, it is most difficult to enforce and police it in the rural areas, especially among the disadvantaged and impoverished. In addition, there are numerous shack dwellers inhabiting the forests of the Tsitsikamma who are not counted on the census list.

The impacts of open-burning has far reaching repercussions. The communities of the Tsitsikamma live in impoverished conditions with no proper housing, electricity and potable water. In addition the unemployment index is pegged at 67%. Against this background the people of the Tsitsikamma turn to every means available to survive. Open-burning offers the inhabitants facilities for cooking and warmth, as the winter in the Tsitsikamma is quite severe. There are occasional

reports of people dying of exposure to extreme temperatures. In addition, the inhabitants recycle old tyres and in this way provide warmth to themselves and retrieve wire for sale from the tyres. The wires are sold to scrap metal dealers and in this way the cash retrieved goes some way to relieve hunger and poverty. The concern is that there is no understanding by the inhabitants that there are different impacts of burning, say wood to treated timber, or for that matter plastic. Everything that ignites is burnt.

The downside of this practice is alarming. Children have suffered third degree burns and some have even died from falling into open fires. The elderly have not been able to escape shack fires due to fires not being doused at time and have perished in the blaze. Fires emanating from open-burning have caused serious damage to the environment and especially to rare flora and fauna, one such being the Bloukrantz fire disaster in 1999. It has therefore raised concern at all levels of understanding and leadership and there is a general consensus that this practice should be stopped or curbed and contained in order that the authorities are not faced with a crisis that is controversial and costly.

Therefore, it is an option that needs further discussion and review. Should the practice of open-burning be stopped completely by the authorities, a review of the need to continue the practice by the poverty stricken and impoverished with clear alternative relief solutions should be undertaken.



### 3. Relocation of the Incinerator

Many stakeholders, especially those nearer to the proposed site have supported the proposal to have an incinerator installed at Stormsriver for various reasons already stated in previous chapters. There appears to be an overwhelming desire to relocate the project, if it becomes a reality, out of the Stormsriver area. The Stormsriver site it is argued, will not serve the interest of the businesses in the area, especially those that depend on tourism and its related businesses for its survival. One stakeholder has been specific that the introduction of an industrial component in the area would depreciate and devalue property prices in the tourist orientated village of Stormsriver.

#### 3.1 The Existing Site at Stormsriver

This site was originally earmarked for a school but due to financial constraints it was shelved. The site is adjunct to the low-cost housing development of Stormsriver. At present it is zoned as public open space (POS).

The choice of site is made on several factors by the Koukamma Municipality. Firstly, the site is serviced and has the necessary electrical and road infrastructure. This makes it an ideal site for an installation such as an incinerator which needs high electrical input and good access roads. However, these issues may not be enough justification for the siting of the waste-reduction incinerator. The local businesses and interested parties do not consider these factors as critical issues and would insist that their support for the project would be conditional on resiting it out of the Stormsriver area.

### 3.2 Locating the Incinerator at Kareedouw

Kareedouw is one of the larger towns of the Tsitsikamma. It is for this reason that it is the seat of the Koukamma Municipality, the proposer and initiator of the proposal to site a waste-reduction incinerator in the Stormsrivier area.

In contrast to Stormsrivier, the town is better planned and an industrial area has been zoned for the purpose of expanding the industries of the area. This area is adjunct to the town but in a demarcated zone with a large open common as a buffer between itself and the town. There are several industrial operations already established in the industrial zone. Amongst these are Nestlé's Chocolates, which manufactures chocolates and other dairy products. Other major industries are timber related, Woodline being one of note. All these industries generate waste in one form or the other.

The timber industry especially, is by far the biggest generator of waste. Apart from packaging materials plastic and ordinary waste, it is responsible for emissions of smoke and carbon dioxide from its kilns which are used for drying and curing of timber.

It would appear at first glance to be the ideal site for the installation of the incinerator for waste-reduction. There is adequate infrastructure and appropriateness of siting for this kind of project. But what is it that resolves the Koukamma to look at Stormsrivier instead. There are several arguments. Firstly, the poverty level at Stormsrivier becomes a crucial turning point in the Koukamma's decision to make such a choice of site.



The idea is noble in that the unemployed will be hopeful of securing jobs and thereby alleviate some of the pangs and pain of poverty. Further, it became a political agenda to visibly prove to the citizens of Koukamma of concern about their plight. Then there is the issue of the present landfill sites and open burning practices that have devastating effects on the poor and disadvantaged. It is therefore not strange that the Koukamma has resolved to make such a decision to site the incinerator in Stormsriver, where it will be most beneficial for the local inhabitants, especially the poor and disadvantaged.

#### 4. Transporting the Waste out of Tsitsikamma

The Koukamma Municipality's decision to move away from the concept of transporting the waste out of the Koukamma is based on firstly, the costs of such an operation and secondly, the legislations and restrictions that govern the transportation of hazardous waste. The transportation of hazardous waste is a complex and scientific process of high complexity and not as simple as it sounds.

In January 2001, the Koukamma Municipality resolved to research the possibility of transporting waste out of the Tsitsikamma with the possibility of funding from the Department of Environmental Affairs and Tourism. The feasibility study took into account the cost of vehicles and fuels and the disposal and treatment costs at the incinerators in Port Elizabeth. The bottom line costs were in the region of almost 1 million Rands per month in total. The funding body turned down the application citing it as being unfeasible. In addition the Explosives Act of 1956 put stringent conditions on how hazardous waste is transported. It is stipulated that certain types of waste cannot be

transported together with others, especially when a combination of certain waste materials could be combustible in transport. This would require separation of materials and hazardous waste at the source before packaging it for transportation. This would therefore require a whole recycling operation, from protective storage to separating bins, including appropriately qualified personnel to manage the operation. The Tsitsikamma Municipality possess neither the funding nor the expertise to operate such a complex process.

It is an ideal and utopian notion to get rid of hazardous waste from your backyard away into someone else's backyard as would be the case in transporting bulk waste out of the Tsitsikamma to pressing plants outside the area. The problem has an immediate solution. Gone would be the worries of the landfill sites and open-burning practices and the Koukamma Municipality would be rid of all the associated problems. But this option would be to the detriment of the institution and send it to financial bankruptcy leaving the whole of the Tsitsikamma in a state of paralysis.

## 5. Keeping the Status Quo (Do Nothing)

If the current practices of waste treatment and disposal is not given urgent attention, there is no doubt that the derogative and negative impacts of the present practice of landfill and illegal open-burning practices will have a highly detrimental effect on the people of Stormsrivier and their habitat, the natural environment. To do nothing in the face of this looming catastrophe is possibly the worst criminal act the Koukamma can commit, given that human, animal and plant life would suffer enormous setbacks. The ill effects on all living organisms



will increase. It would be callous for conscious human beings, those in power and the decision-makers, to sit back and not show concern for the human and non-human world on which we as humans depend so much.

## CHAPTER VI

### FINDING THE SOLUTIONS

#### 1. An Anthropocentric Approach (Human Centered)

This approach would put the interests of the communities above that of the animals or nature. It would also imply that nature and animals are instrumental to promoting the well-being of humans. All our actions taken against and for the ecosystem may impact positively and negatively on our lives. There is however no obligation or duties to animals or the ecosystem. The approach is self centered, human centered and materialistically driven, with money defining the bottom lines and man as the dominant figure only. William F. Baxter, a strong proponent, rejected the notion of a “balance for nature” or the preservation of the environment unless the main reason in his opinion was for the sole benefit of man (Baxter 1974: 483).

The surrounding communities should therefore be given priority over nature and animals from an anthropocentrist’s point of view and the forest reserve and animals and plants should be managed to benefit man solely. An anthropocentrist gearing this project would give less consideration to the reserve, its flora and fauna and its significance within the Cape Floral Kingdom and promote or not promote the installation of the waste reduction incinerator on the basis of solely what benefits would accrue to the surrounding communities such as employment in the pre-construction stage and the operation of the incinerator.



## 2. An Non-Anthropocentric Approach (Animal Centered)

The development, in the eyes of the animal activists such as Peter Singer and Tom Regan would be rejected out of hand if there was a threat to the species of animals inhabiting the Tsitsikamma Forest and environment. They believe that animals feel pain and are sentient beings worthy of moral consideration. Animal activists would definitely suggest that the relocation of the incinerator to another site close by would be a viable solution. They would even consider incorporation of the said piece of land into the forest for further fauna development.

## 3. A Non-Anthropocentric Life Centered Approach

All living organisms in the earth's biotic community deserve equal moral consideration in this philosophy. A life centred approach places man as an ordinary member of this community. Life-centred ethicists disagree that individuals within this biotic community should be accorded a certain amount of moral consideration. If the likes of Aldo Leopold were to search for a solution to this dilemma, they would seek to lessen the impact of man on the natural habitat and vice versa. In this way equal consideration will be accorded each member of the biotic community and eventually seeking an acceptable balance with all members making each as an equal citizen in the natural world.

This could lead to a viable solution being investigated on these lines. This approach borders on the holistic position but individualists within this concept would think somewhat differently and give more consideration to one or the other member of this community.

#### 4. An Ethicist's Perspective of the Morals and Ethics Involved

The Koukamma Municipality's attention is drawn to the relative issue of morals and ethics which is inherent in the sphere of human life in which fundamentally the questions and distinctions between right and wrong, good and evil and the search for what is termed the "good life" exists. It further deals with principles of favour which we would like to subscribe to and feel a strong allegiance to. The moral dimensions of our existence should therefore be put under severe scrutiny and testing in this case. Moreover, a vast number of people, the majority being disadvantaged, expect an authority such as the Koukamma Municipality to behave in an ethical manner (Hattingh and Landman 2001: 1).

Further, the whole essence of environmental ethics which this project is strongly identified with, deals with the moral and ethical dimensions of our relationship as humans interacting with the non-human world, as well as our surroundings in which we live. The focus should therefore be on the kind of impact our actions will have on our living space and the ecosystem as a whole. In guiding the decision-making process the other focus would be to advise as to which impacts can be reasonably and ethically justified, and the justification for such grounds (Hattingh and Landman 2001: 30).

How the Koukamma Municipality uses its resources in this sense and how it views the values and principles guiding this utilization becomes of paramount importance. In the process the Koukamma Municipality must take into account the following in order to operate on a reasonably



acceptable moral level and be seen to be accountable at all times. Firstly, it must be cognizant of the application of its principles and the reasons for its use. Secondly, it must critically analyse and evaluate the values and principles underlying resource utilization. Lastly, it must critically evaluate the manner in which the application of principles is made.

The Koukamma Municipality could apply two methods of arriving at the best methodology to justify its actions and reach decisions including the application and the use of resources. Firstly, a broad general study can be done on a theoretical basis, this could offer the perspectives which deal with the identification of relevant principles:

- determining the scope for the analysis,
- providing a general overview,
- analyzing existing laws and policies to determine the principles informing them,
- and providing a catalyst for debate.

Secondly, a case study in which all relevant principles can be considered and tested could offer the perspectives which deal with the:

- weighing of values and principles relevant to decision-making,
- the decision-making happening in a real life situation,
- proposals of a tangible nature,

- and all of the above could result in value choices and preferred course of actions.

The Koukamma Municipality must be aware that both methods will necessarily not yield an objective stance from which an ethical investigation can be made as the process of analysing environmental decision-making is a value-laden labyrinth. The making of an objective stance is also laden with these kinds of indecisions and indefinites and taking into account the various concerns and values put forth by the affected parties and whether these concerns are of a genuine kind. It is often difficult to fathom out pretence from sincerity and often the benefit of the doubt is given in good faith. However, these are some of the indefinites that complicate the decision-making process and turn it into a moral dilemma.

Having said that, based on the facts and figures, the Koukamma Municipality could start to make an informed ethical choice. A case study, however, can offer this as it is not uncommon in case studies to make suggestions and reach value choices. It would also, however, be a serious flaw if a case study fails to make clear the grounds and justification of making a value choice or, on the other hand, claims to have the only viable solution to the dilemma. Although a case study can reject or criticise certain perspectives or positions, of say stakeholders, it cannot arrive at the only answer in a specific context, and if it does so the integrity of the case would be compromised. This the Municipality should consider on a pragmatic and rational level to arrive at a considered and acceptable decision (Hattingh and Landman 2002: 31).



A case study in Environmental Ethics, although focusing on the ethics of the case, cannot divorce itself from the factual issues and considerations making up the case, as they are a part and parcel of the dilemma. There are facts that accompany the project from the start with the initiators initial submissions, reports and investigations, and these emerge from concrete situations up to the implementation and monitoring of the project. As such, these facts serve as a source for value choices to be focused on by analyzing and dissecting issues, which might at a glance seem okay to the observer, but real deep down are highly complex.

## 5. Proposed Solutions and Justifications

The interdependence of man and the natural environment is a clear and non-debatable fact, more especially so when it comes to understanding the landscape of the biosphere at Tsitsikamma and the site proposed for the installation of a waste-reduction incinerator

Paul Taylor's ethic of "respect for nature" makes us recognise the inherent worth of an ecosystem and all its individual constituents. Our behaviour must, in a way, whilst promoting the well-being of the ecosystem on the one hand, also recognise that all the individual organisms that make up that ecosystem, are each a "teleological centre of a life" (Taylor 1981: 476) and worthy of respect. If we apply this ethics to our problem at hand, I believe we can arrive at an appropriate and satisfactory solution. I also believe, as I concluded in my discussion, on animal rights, that animals are worthy of moral consideration as they are sentient beings who feel pain and suffering and this opinion has obviously influenced my proposed solution in that equal consideration

should be given to animals because we must see them as equals in the biosphere.

The Tsitsikamma eco-system is unique from a geographical, geological biological and historical perspective. Conserving its splendour and especially the biodiversity of its rare plant life, is undeniably important not only for ourselves but for futurity. This eco-system is under continuous pressure. Urbanisation and the recreational use of the forests and rivers by tourists and locals alike, can be detrimental if unmanaged, causing habitat destruction and soil erosion.

Alien plant invasion, as discussed earlier, is also a huge conservation problem facing all Parks. Much energy and financial resources need to be focused on managing these factors. The locals no doubt do pilfer and poach rare endemic plants and animals for food and for sale, and cause some soil erosion and disruptions, but their overall impact when placed in context is probably quite small. No attempts have as yet been made to accurately assess what impacts this problem has had on the actual environment.

Ultimately they are an integral part of the Tsitsikamma biosphere and should respect the environment as they are equal shareholders. However, I feel that the most practical and humane approach would be to embark on a balanced process of establishing a threshold which both sides must respect. In this way all members of the biota enjoy the natural resource on a balanced understanding. This humane approach will avoid friction and will satisfy both animal rights activists, conservationists and anthropocentrists. They are prepared or could be persuaded, to acknowledge the fact that fire and alien plant invasion are



far more of a significant threat to the biodiversity and stability of the Tsitsikamma Forest ecosystem than the human element.

Having said the above and having now concluded that the “respect for nature” philosophy of Paul Taylor is a reasonable solution, a decision to implement a waste-reduction incinerator at Stormsriver will have to take into consideration the impacts of such a project, on not only the inhabitants (man) but also on the natural world (flora and fauna). Each of these entities should be given equal respect, and until all the unknowns are cleared up, no decision should be taken.

In view of the debate whether the installation of the waste-reduction incinerator at Stormsriver should go ahead the theme should rather be that given the many uncertainties that are still unclear in respect of the existing pollution levels, it would be to the benefit of all parties, man and environment, that the project be put on hold until all uncertainties are cleared up and all other dynamics are settled.

## CHAPTER VII

### CONCLUSION AND RECOMMENDATIONS

#### 1. Introduction

The Koukamma Municipality as an administrative authority has a very serious moral and ethical responsibility, as well as a host of other basic issues in combination to firstly, create a sustainable and healthy community and secondly, to protect the well-being of their citizens.

In order to achieve the above, the Municipality will have to consider unemployment levels, the existing health issues, the effect of their various decisions on the flora and fauna of the surrounding areas and the effects of long term plans and decisions on their future citizens of the area.

Therefore, given the diversity of understanding, the levels of illiteracy and literacy, poverty and other community dynamics of tradition and culture, the Municipality needs to investigate and consider all different approaches and views put on the table by all role-players. All these participants have valuable contributions to make towards a better and clearer understanding of the norms, values and principles in making a decision about whether the proposed waste-reduction incinerator should be constructed in Stormsrivier, Tsitsikamma, an area so rich and diverse in endemic plant life and animal habitats, that it is cited as one of only six habitants of the world.



## 2. Evaluating the Findings and Reaching Concrete Solutions.

In order to arrive at a rational and pragmatically widely accepted decision, the Koukamma Municipality needs to unpack the different distinctions and approaches to the dilemma and by also carefully assessing and selecting those values or virtues which could be found to be sound, and of mutual benefit to all stakeholders and unquestionable at a global level.

First and foremost is the critical aspect of whether, from a technical management point of view, the Municipality has availed itself of all the factual information and has explicit knowledge about the technical aspects such as emission qualities, regulations governing the installation and operation and also as concerns minimum safety and security standards. In addition, the location of the installation in terms of distance to residential areas or educational facilities would be assessed and considered. Given the existing problems of waste-reduction, the point of view at a technical management level would also look at whether the option of a waste-reduction incinerator would be less problematic and costly to the Municipality, if compared to the dangers and costs of open-burning and landfill sites.

Secondly, the Municipality should analyze critically its decision-making structures and evaluate whether the people making up this structure are those of adequate knowledge or even empowered enough to make rational and critical decisions on issues such as waste-reduction. This is essential if the Municipality is committed to arriving at an objective decision. Further, the authorities, by the mechanism of a monitor, must

ensure that the processes involved in arriving at the end decision has been followed, one of the more important being participation and consultation by and with all role players, bottom to top and that is from the beneficiaries to the highest authority relevant to the subject matter.

Thirdly, and finally, is the ability of all authorities to make speedy and immediate decisions on how to alleviate the current problems on a short-term basis. This should be done in such a manner that the beneficiary community will not be prejudiced whilst the process of deliberations and decision-making on the siting of the new incinerator run in parallel.

### 3. Managing the Evaluations and the Decision-Making

The central considerations that accompany a technical management approach are issues that are purely based on policy and guidelines pertaining to a specific problem or application. The management of any establishment would look at the problem at hand in respect of whether the application conforms and satisfies the different aspects set out in the guideline policy document in so far as it concerns the technical, social and sometimes political aspects. In addition, any deviations to the guideline policy and that which requires the approval of a higher authority outside the existing establishment, will have to be motivated for, giving factual background documentation in support of the deviations requested.

Therefore, from a purely technical management point of view, it appears that the waste-reduction incinerator at Stormsriver should be supported, but should be subject to serious and stringent riders and conditions.



The first condition being that the health of the surrounding beneficiary communities should not be affected in any way and this aspect should be monitored on a basis of constant evaluation and assessment. If the on-going assessments show that the process is deficient in any way, and the health of the communities is in any way ultimately seen to be affected, the process should stop and the operations be re-engineered to conform.

In addition, clear and scientific reports must be obtained from reliable scientists that the operation of the waste-reduction incinerator and its emissions, when taken into consideration, cumulatively in the Stormsrivier area would not have detrimental impacts on firstly, the workers and also the neighboring communities. This should take into account all background pollution, including industrial or household emissions in the context and various open-burning practices. A further guarantee from the Authorities to the beneficiary community must be that the existing guidelines from DEAT, if adhered to, will indeed protect the health of the surrounding communities living in and around Stormsrivier, if evaluated against the background of the existing levels of pollution in the context.

The procedural route of engaging suitably qualified scientists to undertake an Environmental Impact Assessment (EIA) must be looked at for how relevant its findings would be if the factors that would finally determine the decision goes wider. A further consideration would be to engage different scientists to firstly undertake an EIA and also a Strategic Environmental Assessment (SEA) if necessary. In this way the authorities can assess conflicting or similar views of the scientists and if the views are radically different, an undertaking must be given to the beneficiary

community that the quality and integrity of the information obtained will have no consequence on the eventual decision to be made. If the findings are to influence the decision making and that which emanates out of similar viewpoints, the authorities will have to also give assurances that the scientists forwarding those opinions are ones of the highest integrity and reputation and highly respected in their fields of expertise.

As a further rider, no stakeholder or role-player should be marginalized when it comes to making decisions, and all stakeholders must participate in all the processes leading up to the decision.

In so far as the non-human environment is concerned, the authorities must ensure that the welfare of the natural environment, mainly plants, birds and animals is in no way affected, mainly, should the decision to build a waste-reduction incinerator at Stormsriver go ahead.

In respect of the afore-going requirements, the application of these conditions would really be academic, if the rules of the game is not fully understood. Therefore, it is imperative that all outstanding and missing information is identified, especially those that deal with pollution levels, both local and broader, explicit views of all role-players, all national, provincial and local by-laws and regulations, amendments and bills already in force but yet not published, the technical issues in respect of the subject matter, i.e. the installation and operation and management of the incinerator, and finally a full understanding of the various aspects of the biotic community, i.e. health of people, the welfare of plants and animals and the effects of pollution on natural resources such as air, water and soils. More especially the existing health levels of the



communities and natural world and its deterioration over time from other pollutants and open-burning will be vital information guiding the decision-makers.

Should the issues above be thoroughly and transparently collated and assessed, the Authorities will be in a position to establish on a scientific basis exactly what effects the proposed incinerator will have on the health of the immediate community and that of the broader demographics, including that of the non-human world to include water, air and soil. In this way it will be able to ensure that the DEAT guidelines are adhered to, or that the level of concern and interpretation goes beyond that of the guidelines.

To adequately determine with enough confidence that the health of the surrounding areas (i.e. man and natural environment) will not be affected by increasing the ambient air pollution levels, the Koukamma Municipality must, as a matter of course, undertake a baseline study of all pollutants in the area. To this must also be added the level of household pollutants. In tandem, a health survey clearly documenting the status of the health of the respective community and surrounding people who are affected by this proposal must be undertaken. The main issues to be covered by this study will be firstly the effects of the potential emission of the proposed incinerator and the cumulative effect of background emissions from other pollutants in the area besides the new incinerator. This baseline study will finally determine whether, after adding the existing pollution levels to that of the emissions and pollutions of the proposed incinerator, it will stand the test of the DEAT guidelines. This comparison, which is the most reliable route to test the

process, if not tested against the DEAT guidelines, will result in misleading figures and eventually in an erroneous decision.

Therefore, in understanding and closing the gaps in the investigation and reporting, the Koukamma Municipality would be acting responsibly, in that their final decision-making would be justified as all loopholes and deficiencies in the relevant knowledge required would have been obtained.

The problems that accompany the submissions of different opinions and the subsequent conflict raises very critical questions. It appears that one cannot lambast a scientist or consultant for differing on issues of the same kind, so the question that begs is that if we cannot obtain a single value system for the same problem, where does it leave us in decision-making and the evaluation of what is right and what is wrong?

After, all the real moral issues of deciding the fate of human beings and that which often leaves indelible and irreversible effects on the lives of people cannot be gambled on ifs, buts and maybes and also innuendos, but on hard facts which can be tested. It is therefore proper to discard conflicting opinions and or request a fresh opinion from an independent party with serious reservations in respect of opinions of certain scientists and their levels of competence and understanding.

Also, the Koukamma must be vigilant of administrative officials within its ranks, who side one or the other opinions of specialists and consultants and who should not take sides as they are not equipped with the scientific expertise to form opinions of their own. If officials take sides, and venture outside the sphere of their competence they will



compromise the integrity of the decisions they make and finally that of the beneficiary community. This must be avoided at all costs.

In order to safely avoid these internal conflicts and conflicts of interest, it would be very responsible of the Koukamma Municipality, before making any decisions about the proposed incinerator, to subject any conflict or difference between scientists and consultants involved to an independent scientific review and this could be done by more than one scientist working independently from one another.

The appointment of several scientists and consultants to, undertake assessments, and the further appointments to verify grey areas of conflicting opinions, can turn out to be a very costly exercise for some municipalities, especially the smaller ones. It is therefore a very crucial part of the sustainability of this process that the right expertise is engaged with the relevant experience and authority the first time around.

This takes us to the other critical point which is the independence of consultants that are commissioned to design the project and further the scientists and consultants involved in the various reports.

This process must be undertaken under the strictest ethical procedures determined by the procurement system of the Authority and the service providers must be cleared for firstly, not having any interest in the Municipality and or the project, e.g. the engineers involved in the design cannot be involved in the EIA or SEA or even consult on other than the technical aspects and scope of their terms of references. Secondly, the consultants must be adequately qualified and experienced

in their respective fields. And finally, the choice of consultants must take into account a sense of value and environmental awareness. Of course, the understanding of the environmental scientists must be further looked at in so far as their understanding of responsibility and service to the common good are concerned.

Although conflicts of interest, especially that which concerns independence of consultants, may be justified in narrow legal terms, the Koukamma must look beyond this and examine the matter on moral and ethical grounds. This is especially so when it comes to the consultants responsible for all the impact assessments, be it the EIAs or SEAs. Even if it can be shown that there exists no direct conflict of interest (in the sense of future financial gains) and also even if it can be shown that there was no bias in the compilation of the reports, the Koukamma should refer the reports to an independent panel for assessment as a matter of standard procedure.

This is important in that if there is any cloud of doubt in the way in which decisions were made, it would compromise the integrity of the process of decision-making, as well as that of Koukamma as a government institution and an institution of decision-making.

Therefore, the following course of action should be considered, as reinforcing these considerations more concretely and soundly, before any planning or decision gets taken towards the construction of a waste-reducing incinerator at Stormsriver, in the Tsitsikamma.

Before considering the proposal, the following precautions should be taken. Firstly, there is the baseline study to determine the pollution



effects from the proposed incinerator and other pollutants in the neighbouring areas, and the cumulative effect of this pollution on the health of the beneficiary community. Secondly, the assessment of the cumulative effects of pollutions together with the effects of future pollution to the existing demographics and its future generations must also be determined. Thirdly, the assessment whether the DEAT guidelines is adequate to base a decision on, especially when taking the cumulative effect of the pollution levels on health of people and environment into account. Then there is the review whether any conflict of interests exists from any stakeholder, whether it be community, scientists, consultants or the Authorities. And finally, the subjecting of any crucial report, whether it be technical, social or environmental, to a review by a carefully chosen independent authority or professional.

The above provisions cannot be ignored, and if they are, then the proposed incinerator implementation would not satisfy the principles of transparency, informed decision-making on the basis of sound, complete and reliable factual information, a cautious and risk averse approach to decision-making, and the protection of public health and environment.

#### 4. Devolving the Procedure and Structure for Decision-making

Concerning a procedure and structure that could be recommended in decision-making for the proposed incinerator at Stormsriver, Tsitsikamma the following pertinent and critical aspects of the process is recommended to the Koukamma Municipality.

Given the sensitivity of the matter and the anticipated serious polarization likely to occur between the supporting groups and those opposed to the proposed incinerator, decisions that are acceptable to all interested and affected parties must be reached and this can only be achieved if the procedures and structures of decision-making speak of the highest levels of fairness and integrity. Anything that might even lean towards casting shadow and doubt on the structures and procedures of decision-making must be immediately identified before hand and addressed adequately. This is of paramount importance to the Koukamma as a decision-making authority in safeguarding its integrity and name among its citizens.

One area that may tend to cast shadow and throw doubt on the procedures and structures of decision-making would be the intervention of officials of the Koukamma in making decisions about the appointment of and the making of any recommendations either on the various environmental reports or the construction, or even the design of the incinerator. The most sensitive issue is the assessment of impacts which should not be left to an official, and this must be guarded against. Regardless of the legal status of an official's assessment or evaluation, and regardless whether the official will be directly involved with the decision-making or not, it raises questions whether the Koukamma Municipality has within its establishment suitably qualified people to make assessments. The concern raised earlier as to whether the independence of the decision-making body will still exist emerges once more. In addition, the perception that decisions are made by corrupt officials and politicians in the appointment of consultants who are incompetent or favour decisions for monetary gain rather than the benefits to the broader community, is a rife issue marring perceptions of



the Government of today. This perception must be defused from the start and its emergence highly avoided.

In addition, even if officials do not have any influence in the decision-making process, the problem will still remain regarding the independence of the decision-making body itself. The Koukamma Municipality is not only the proposer, but also the decision-maker and the manager who will be tasked eventually to monitor the implementation of any decisions reached. The ethics that need to be scrutinized here is whether this local authority can make a controversial proposal, decide upon, it and police the implementation and future monitoring. The conflict of interest debate here surfaces again, if not in terms of financial gain, but nevertheless in terms perceptions of a conflict of interest at a moral and ethical level. Therefore, I conclude that the Koukamma cannot table the proposal to build an incinerator at Stormsriver and make decisions upon it without causing the perception of conflict of interests. It therefore must try very hard to defuse this perception from the start.

Such an approach may substantively allay the fears of the residents of Stormsriver and the surrounding Tsitsikamma, about steamrolling done by an alliance of government structures. The proposed decision-making panel should therefore be composed in such a manner that the core values of participation and transparency are satisfied.

## 5. On Bigger Policy Issues

Although these recommendations are done at the instance of the Koukamma Municipality in view of the current problem they face in

respect of implementing a waste-reduction incinerator at Stormsriver, the direction shown here must also be taken note of by those at higher levels of policy formulation.

The issue of cumulative impact assessment and the holistic benefit of strategic environmental assessment and its long term benefits to the human and non-human worlds should be noted and highlighted. The law at present does not require the undertaking of higher level impact assessments but there seems to be sufficient grounds in the principles of administrative justice, namely that decisions should be taken on the grounds of reliable and adequate factual information and to argue that authorities have a duty to require cumulative reports, before any decisions are made. In the light of this, it must become incumbent on the state to re-look at the existing legislation's deficiencies and create guidelines for the realistic, effective and strategic assessments to be developed and implemented as soon as possible. The Koukamma can become the catalyst for this.

It has been emphasized that there appears to be serious doubts about the effectiveness of current legislation and regulations to safeguard public health and safety. A case in point, and that which is currently pertinent is the DEAT guidelines for emission levels of incinerators. It may be true that emission levels may be regarded safe at stack level but evaluated against the existing populations pollution levels, these levels do not stand up, especially when existing background levels are added. This therefore, calls for a fresh look at using DEAT guidelines, namely not as absolute thresholds, but as guidelines whose validity should be tested in particular circumstances and complex situations.



It is therefore the recommendation that as a part of good practice in environmental impact assessments and decision making, to clearly state whether the guidelines are adequate, for instance in this particular case, in the protection of lives and well-being of people and the environment alike.

Further, questions must be raised whether the provisions of the Atmosphere Pollution Act of 1956 are realistic and effective in the context of present day incineration processes and the effect of the different toxic emissions that today's waste products would produce. It is therefore strongly recommended that a study be done on the Atmospheric Pollution Act of 1956 so as to ascertain whether it fulfils the objectives for which it has been promulgated, namely, to protect the safety, including the health of the public and the life of the non-human world.

## 6. A Closing Word on Ethics and Values

Choices are something that will always be an integral part of our lives and will determine our actions in whatever we do as humans. But do we make the right choices? Most often choices are geared towards favouring the entity that makes it, and ultimately it is chosen for the benefit of the same entity. The Koukamma Municipality could have easily decided to relocate the incinerator out of Stormsriver, in an area less controversial and without serious ethical and moral dilemmas rearing its head. However, it has elected to site the incinerator at Stormsriver, doing so for the greater good. Concerns of high unemployment, poverty and a better quality of life for all seems to be a major concern for the Municipality, and so also concern for the

environment with its own indigenous plant and animal life, its quality of air, water and earth and its very unique position within the earth's biotic community.

The search for a balanced solution by the Koukamma Municipality, where the whole of the biotic community is sustainable on a long-term basis is a value-laden and commendable virtue.

Urbanization will always clash head on with conservation and Valli Moosa puts it well when he states that "development and conservation make strange bedfellows". There is therefore, a strong indication that we humans must work with nature in order that a sustainable environment evolves, not just for the present generation but also for the future ones.

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